DOCTORAL THESIS

Equity market information asymmetry and the small firm

Dwyer, Bruce

Award date:
2018

BOND UNIVERSITY

Equity market information asymmetry and the small firm

Bruce Dwyer

Submitted in total fulfilment of the requirements of the degree of

Doctor of Philosophy

Bond Business School, Bond University, Australia

Supervised by:

Dr Colette Southam

Professor Keith Duncan

Submission Date: 21 May, 2018

Publications

Dwyer, B., Duncan, K., Southam, C., 2017. Small-scale private equity: Demand versus supply. Presented at the 2017 Financial Markets & Corporate Governance Conference, Wellington, New Zealand 20-21 April

Dwyer, B., Kotey, B., 2016. Identifying high growth firms: Where are we*?* Journal of Management and Organisation 22(4), 457-475

Dwyer, B., Kotey, B., 2015. Financing SME growth: The role of the National Stock Exchange of Australia and business advisors. Australian Accounting Review 25(2), 114-123

Declaration

This thesis is submitted to Bond University in fulfilment of the requirements of the degree of Doctor of Philosophy by Research.

I declare that the research presented within this thesis is a product of my own original ideas and work, and contains no material which has previously been submitted for a degree at this university or any other institution, except where due acknowledgement has been made.

Name: Bruce Dwyer

Signature:

Date: December, 2017

Acknowledgements

I have been blessed with the two most helpful and constructive supervisors that a candidate could ever wish for. Professor Keith Duncan and Dr Colette Southam contributed countless face-to-face hours and precious private weekends to ensure that the complex series of studies detailed below met the standard required for PhD status. Without their help, I would never have made the grade.

I owe Judi, my wife of some forty years, more than I can ever repay for her unselfish loving support and real social sacrifices she made to assist me, on this, the most arduous of journeys.

Lastly but not least, I thank my small team of assistants, including Amanda Yee for her hard work in acquiring reams of complex data, and Noah Southam for the refinement he bought to the manuscript.

Table of Contents

List of Figures

List of Tables

Abbreviations

ADP	Adaptability to change
AIM	Alternative Investment Market
ALC	Allocation of SEO proceeds
ANOVA	Analysis of variance
AR1	Abnormal return - short term
AR3	Abnormal return - Long term
ASX	Australian Securities Exchange
ATO	Australian Tax Office
AVCAL	Australian Private Equity and Venture Capital Association Limited
BMR	Book-to-market ratio
CCC	Cash conversion cycle
CEO	CEO's specific industry experience
CFA	Cash flow to total assets ratio
CHN	CEO's churn history
CIN	Chair independence
CIV	Collective investment vehicle
CON	Hire specialist consultants
CSR	Corporate social responsibility
CTP	Cashflow to price ratio
CUS	Customer involvement
DE	Debt to equity ratio
DIL	Disposal of poorly performing assets
DIS	Discount (%) on shares offered at SEO
DIV	Diversification of products
DRP	Creation of a disruptive technology
EBIT	Earnings before interest and tax
EDU	Education: Number of degrees held by board
EDUC	Education: CEO's tertiary qualifications
EDUR	CEO's relevant tertiary qualifications
EIK	Explicit industry knowledge
EPS	Earnings per share
ESVCLP	Early stage venture capital partnership
EXP	Total of years industry experience on board
GFC	Global financial crisis
GLBL	Offshore presence/export orientation
GM	Gross margin ratio
HGF	High-growth firm
HNW	high-net-worth-individual
IM	Information memorandum
IND	Proportion of independent directors
INN	Innovation

INST	High-level membership of industry institutions
IO	Industrial organisation
IPO	initial public offering
IT	Strategic implementation of information technology
ITO	Inventory turnover
KMO	Kaiser-Meyer-Olkin
LDR	CEO's transformational leadership
LTE	Ratio of long-term debt to equity
LTTA	Ratio of long-term debt to total assets
MKT	Percent of revenue committed to marketing
MSEO	Number of SEOs ante current SEO
NAB	National Australia Bank
NM	Ratio of EBIT to gross revenue
NSX	National Stock Exchange of Australia
OPT	Number of options held by CEO
OWN	Percentage of firm owned by directors
PAT	No of patents or copyrights lodged
PE	private equity
PI	ASX notification of possible infringement
POA	Parliament of Australia
PRU	Pre-SEO stock price run-up
QR	Quick ratio
RBV	Resource-based View
REP	Corporate reputation
REPC	CEO's reputation
RFA	Ratio of equity to fixed assets
RG3	Revenue growth in previous 3 years
RL	Recognised leaders in their industry
RM	Resource maximisation
ROA1	Return on assets - short term
ROA3	Return on assets - long term
SAL	CEO's base salary and bonuses
SEO	Seasoned equity offerings
SEPRL	Separation of role of chairman and CEO
SERV	CEO's years of service with firm
SFA	Ratio of sales to fixed assets
SG	Strong governance dimensions
SME	Small and medium-sized enterprises
SMSF	Self-managed super fund
SPV	Special investment vehicle
SSPE	Small-scale private equity
STA	Ratio of short-term debt to total assets
THN	Acquire strategic human capital

TRN	Amount of revenue committed to training
TSXVE	Toronto Stock Exchange Venture Exchange
TT	Technology transfer
VAL	Value of acquisitions or mergers undertaken
VCLPs	Venture capital partnership
WAAC	Weighted Average Cost of Capital
XEC	S & P/ASX Emerging Companies Index

Chapter 1: Thesis introduction

Capital markets are affected by information asymmetry when one party (typically the manager or owner) has relevant knowledge that the other party (typically the investor) does not. This may result in adverse selection, whereby potential investors mitigate uncertainty by progressively discounting equity prices as the level of information asymmetry increases. The adverse effect of information asymmetry on asset prices of large corporations has been studied extensively Leland and Pyle (1977); (Reinganum & Smith 1983; Myers & Majluf 1984b; Clarke *et al.* 1999; Baker & Wurgler 2007), but its effects on small firms remain under-researched. This study explores the impact of information asymmetry on both the demand and supply of small-scale equity funding.

Akerlof's (1970) seminal literature on the adverse effects of information asymmetry on asset prices describes a hypothetical used-car market, where the buyer does not know if a given car is a 'lemon' or a 'cherry.' The buyer's inability to discriminate between cherries and lemons results in a discounted price for the 'cherry' and a premium being paid for the 'lemon.' Sellers soon realise this and offer fewer cherries and even more lemons for sale, which eventually lowers the average car quality. In the extreme, this could lead to market failure as the cherry sellers abandon the market.

Grossman & Stiglitz (1976) apply Akerlof's (1970) theory to capital markets. They conclude that in a poorly-informed market, the contingent price variability (volatility) leads to increased uncertainty about the intrinsic value of the investment asset. The increased perception of risk drives prices downwards, as predicted by Akerlof (1970). Figure 1.1 illustrates the impact of information asymmetry on both equity price (solid line) and the amount of available capital (broken curve). It is evident that to compensate for risk, investors progressively discount equity prices as the amount of information asymmetry increases (Myers & Majluf 1984). The broken curve illustrates equity investors aversion to information asymmetry (Scarborough 2012).

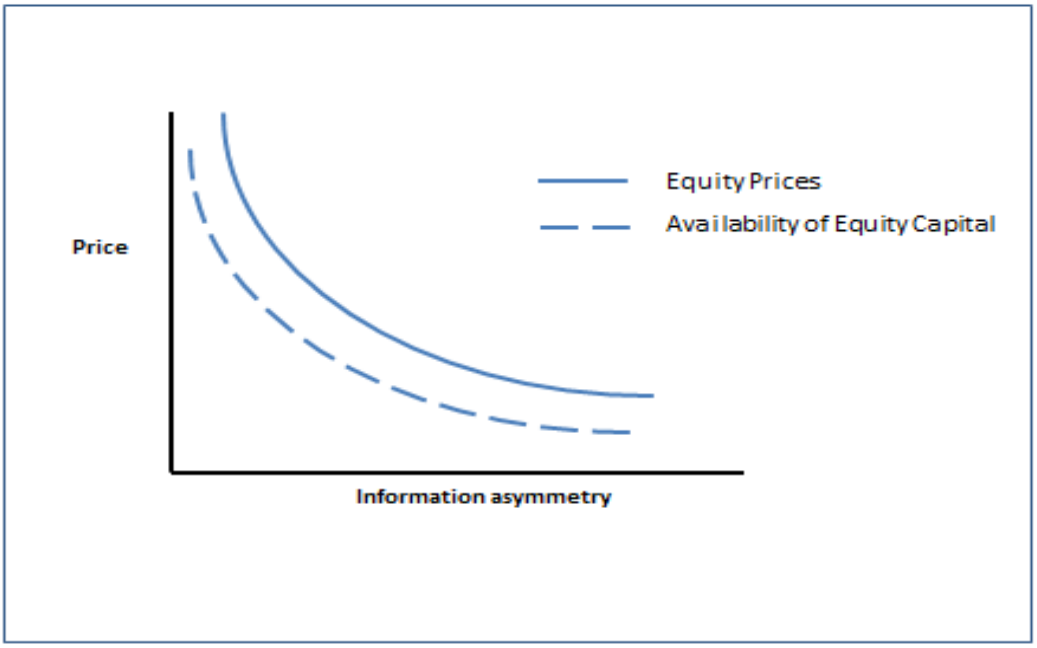


Figure 1.1 Impact of information asymmetry on equity prices and availability.

The literature suggests two solutions to overcome market information asymmetry: signalling and screening. Spence (1973) developed a job-market signalling model whereby employees can signal their quality by acquiring education; this represents a credible signal that lessens market information asymmetry, because it is costly and cannot be mimicked by low-quality candidates. Applying Spence's signalling theory to the capital markets, Leland & Pyle (1977) describe how a firm's insiders can credibly signal their firm's high quality by retaining a greater proportion of their shares. Alternatively, they can use compliant but respected intermediaries to signal their high quality. In contrast, Rothschild and Stiglitz (1976) observed that those who do not possess good information overcome this adverse selection by screening good information from useless information. Potential investors in the capital markets seek a screening mechanism which enables them to differentiate high and low-quality firms in the capital markets.

Although stringent exchange disclosure regimens reduce information asymmetry (Reinganum & Smith 1983), the reduction is not uniform across listings because boards of larger companies have more independent directors to enforce governance and increase

transparency (Reinganum & Smith 1983; Hoje & Yontae 2007; Abosede & Oseni 2011). The boards of smaller, tightly-held companies tend to be opaque, with the quantum of information asymmetry correlating with the degree of equity owned by their managers (Bowen *et al.* 2008; Abosede & Oseni 2011; Iddon *et al.* 2013). The small-firm market's weak-form efficiency makes it price-sensitive to asymmetric information (Reinganum & Smith 1983; Orycaso & Rogers 2004; O'Shea *et al.* 2008; Ozenbas *et al.* 2010). This thesis focuses on small companies which provide a rich environment to study the adverse effects of information asymmetry on equity capital raisings.

1.1 Research questions

This thesis addresses three core research questions as follows:

1. How does market information asymmetry impact small firms raising equity capital?
2. What impediments do small firms face in signalling their quality to potential investors? For example, firms could use certification by intermediaries (Booth & Smith 1986), disclosure (Russell 2015), or retention of equity by insiders (Leland & Pyle 1977) to signal that the issue price is consistent with inside information.
3. What screening mechanisms (Stiglitz 1973) can potential investors use to differentiate small firms of high quality from those of low quality? For example, can we identify a short list of criteria similar in principal to Ben Graham's Stock Screener for identifying strong value stocks based on publicly-available information that would enable investors to identify high-quality small firms?

1.2 Motivation

The driving motivation was to bridge the gap between theoretical dissertations on the demand and supply for small-firm capital raisings, and the obfuscated reality of the equity capital-raising markets themselves. Personal experience reveals that professional capital-raising practitioners agree with (Simeonov 2015), who perceives 'the size and fragmentation of capital markets' as a major obstacle to small-firm equity capital raising for both listed and unlisted small and medium-sized enterprises (SMEs). Apart from analysing warning signals

emanating from earnings management, few studies have attempted to identify the effects of information asymmetry on small-firm capital raisings. Abosede and Oseni (2011) state that contemporary research on the financial impact of information asymmetry on small-firm capital raisings is inadequate, especially 'in areas of equity pricing in the capital markets.' To the best of our knowledge, no recent studies rebut this observation.

This thesis' findings will benefit small firms, investors, policymakers, and capital market makers by:

- Facilitating small firms, both listed and unlisted, to signal their quality to identifiable cohorts of professional equity investors, thus improving access to capital which will yield improvements in productivity and employment opportunities.
- Assisting potential small-firm investors by developing screening and selection criteria to assess the soundness of the financial performance projections of potential investments.
- Influencing policymakers to legislate for new innovative sources of small-firm equity capital funding, risk mitigated by stringent disclosure obligations.

The economic importance of this research is a key motivation. Excluding their small-listed counterparts, SMEs contribute 57% of Australia's GDP (NAB 2017) and employ 4.7 million Australians (POA 2015). In terms of importance for the market makers, small-listed firms constitute 86% of ASX listings (Glennon 2017). Theoretical research on SME funding has long been an important journal topic, but tends to be essentially empirical in methodology and focused on working with large, readily accessible databases. This fails to capture the field reality.

Further, we contend that empirical methodology does not necessarily capture the essence of the causal factors requiring remediation in an applied economic sense. To achieve outcomes that offer applied real-time solutions, directly relevant and current in-depth data must be painstakingly garnered from targeted populations. The data must reflect the hard-edged detail of the research questions rather than a sanitised bulk elicitation. In an effort to achieve a more applied economic outcome, we depart from finance's conventional preferences for empirical paradigms and apply a mixed-methods approach.

In summary, the motivation for this thesis is not only to pierce the veil of information asymmetry surrounding SME equity raisings, but to launch an academic progenitor able to improve liquidity in small-scale capital markets.

1.3 Limitations

Clearly, a study of this breadth and scope will ipso facto suffer from certain limitations. The recurring limitation through the three constituent studies is sample size. While the two qualitative papers met the minimum sample size criteria set by Eisenhardt and Graebner (2007), and saturation levels were achieved, we were conscious that we were operating at the lowest acceptable level.

Again, the sample size imposed by the small number of SEO-issuing companies on S&P/ASX ECI will be seen by some as a limitation of this study, but it exceeds the number of predictor variables required for discriminate analysis as mandated by Press and Wilson (1978). The number of responses per independent variable also exceeds Hosmer *et al.* (2013) minimum of the twenty observations per variable needed to achieve empirical validity for Multinominal Logistic Regression. The effective discriminant analysis-based predictive equation generated in the Chapter 4 empirical paper was tested on the minimum sample size advocated by Press and Wilson (1978) and Hosmer *et al.* (2013), but would benefit from testing across a much wider population.

1.4 Thesis structure

The three papers that constitute this thesis explore the effects of information asymmetry across three different capital-raising structures: small-scale private equity (SSPE); initial public offerings (IPOs) on a secondary securities exchange; and seasoned equity offerings (SEOs) of small-cap companies[1].

[1] Small-cap refers to firms with a relatively small market capitalisation. The definition of a small-cap stock varies between stock exchanges, but usually refers to firms with a market capitalisation between $300 million and $2 billion. While the Australian Securities Exchange uses the term microcap this thesis used the generic term small-cap.

Figure 1.2 depicts the adverse effects of information asymmetry on each of the three scenarios. Firms seeking public equity funding consider an IPO on the secondary board, the National Stock Exchange of Australia (NSX), but potential underwriters and investors shun the equity-seeking firm because information asymmetry obscures its quality. The SSPE market suffers from a two-way effect of information asymmetry. SSPE providers cannot see or risk-mitigate investment opportunities, and the SSPE seekers cannot identify the providers. The ability of SEOs to achieve their capital-raising targets is also hampered by information asymmetry. Investors are denied a cohesive and transparent picture of investment opportunity, hence their appetite to invest in the SEO is diminished.

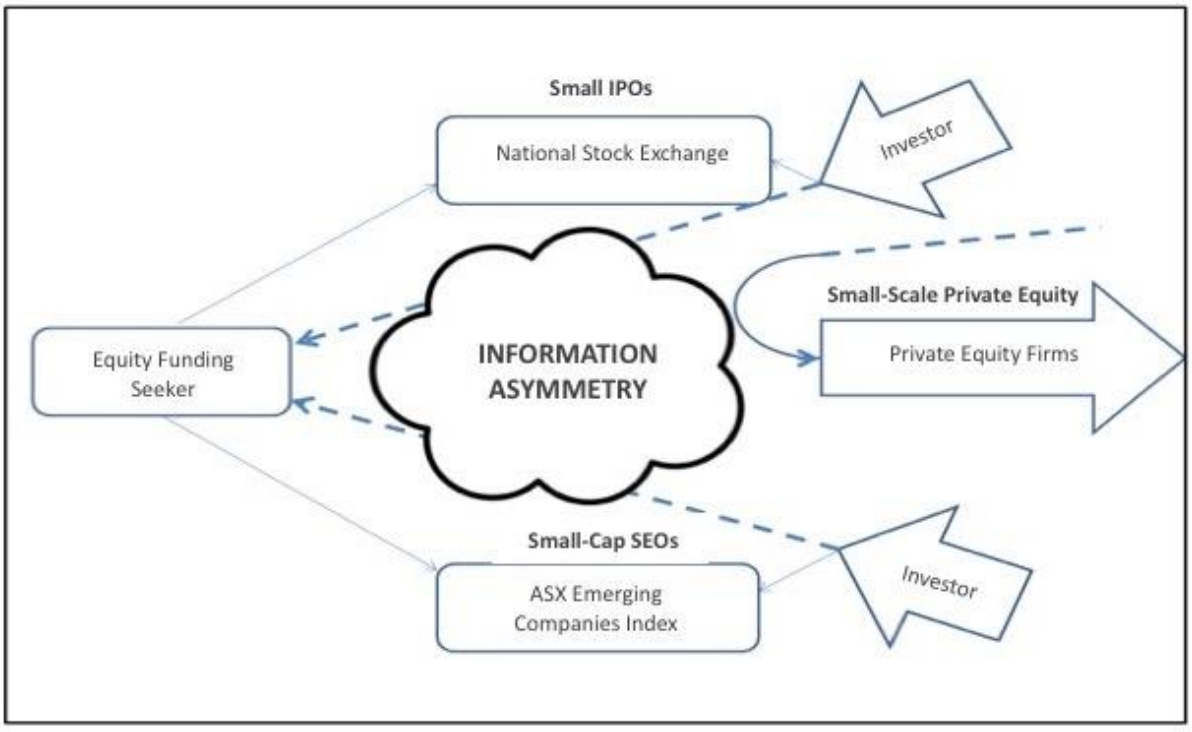


Figure 1.2 Flying blind: three essays on information asymmetry and capital raising.

1.4.1 Small-scale private equity

Pecking order theory (Myers & Majluf 1984) predicted that SME owners seeking external funding prefer debt over more expensive equity. However, Forsaith and McMahon (2002) found that high-tech start-ups, HGFs, and nascent HGFs regard equity funding with more equanimity. A more recent study by Brettel *el al.* (2009) confirm that HGFs have a more

positive attitude to external equity. Brettel *et al.* (2009) suggest the increased acceptance of SSPE emanates from a 'perceived' increase in the value of the firm which outweighs the negatives, including loss of control.

We hypothesise that smaller, well-resourced Australian Private Equity (PE) firms may be pre-disposed to taking equity positions in HGFs able to demonstrate the necessary organisational core competencies (Laguna *et al.* 2012) needed to continue on their high-growth value-added trajectory. This study addresses the gap in SSPE supply perceived by Forsaith and McMahon (2002) and tests pecking order theory for Australian HGFs post-global financial crisis (GFC). A simplified summary of the study's results is depicted in Figure 1.3. We found that institutional funds would only take equity positions in high-gross firms (HGFs) through licensed intermediaries, usually PE firms. PE firms had no means of identifying compelling SSPE opportunities, whilst HGFs and their advisers were largely ignorant of the existence and function of the PE industry.

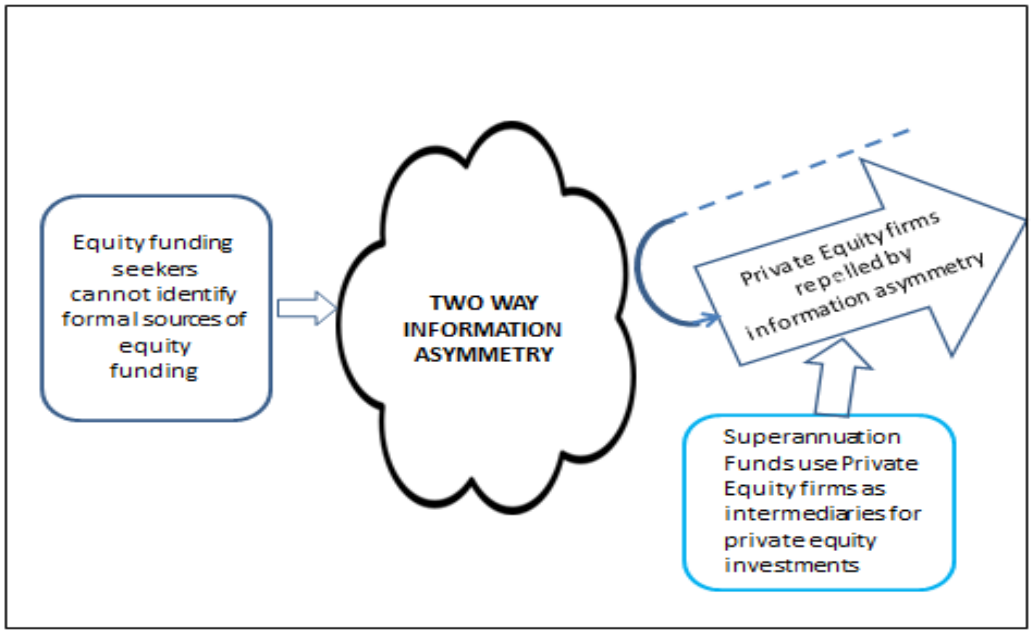


Figure 1.3 Effects of information asymmetry on SSPE.

1.4.2 Small public listings

Evidence of SME's restricted access to funding is well-documented in economic and

financial literature (Beck & Demirguc-Kunt 2006b; Fatoki & Smit 2011b; Harjoto & Paglio 2011; Paulet *et al.* 2014). This study addresses the gap in the literature concerning the supply of external equity available to fund small and medium firms. We confirm Scarborough's (2012) contention that private equity firms follow rigorous screening processes, are very selective, and take equity positions in less than 1% of applicant firms.

HGFs unable to access equity funding from private sources may access public equity via an IPO, provided they can meet an exchange's listing requirements. The effort may be worthwhile, as the benefits of an IPO extend beyond access to capital. An IPO minimises the firm's cost of capital and maximises its value (Brau & Fawcett 2006), improves borrowing capacity (Pagano *et al.* 1998), creates publicity for the issuing firm (Demers & Lewellen 2006), enhances its reputation with customers, suppliers, and other influential third parties (Witzel 2005), and is a powerful tool for attracting key employees (Broude 1997). For businesses with a winning technology or product, an IPO may maintain first-mover advantage by providing sufficient liquidity to sustain product and market development until the technologies are established (Maksimovic & Phillips 2002).

Most developed Western economies recognise the need for 'junior' stock exchanges that provide SMEs with cheaper and simpler listing requirements than mainstream exchanges. The NSX was specifically established to fill this role. Taken in that context, the NSX's lack of visibility and poor performance is puzzling, especially when compared to its successful counterparts in the UK, the US, and Canada. For example, the NSX raised $A626 million and $A359 million for the financial years ended December 2011 and 2012 respectively (NSX 2012). For the same periods, the UK secondary exchange, the Alternative Investment Market (AIM), raised $A6.88 billion and $A4.96 billion (LSE 2014).

The NSX's inability to perform its role as a listing medium for Australian HGFs has not been the subject of prior research. We find that the NSX ineffectiveness stems from lack of a live trading Bloomberg facility, high brokerage costs, a lack of underwriting support, and chronically thin trading. The NSX's weak public profile made it largely invisible to HGF advisers, including their business accountants and lawyers. The secondary exchange's

shortcomings are exacerbated by its lax disclosure requirements, which fostered the rise of the information asymmetry that masks the performance of its listings from investors.

The NSX's shortcomings are illustrated in Figure 1.4. Chapter 3 is a complete account of the study on the NSX's ineffectiveness as a secondary exchange, and the causal factors thereof.

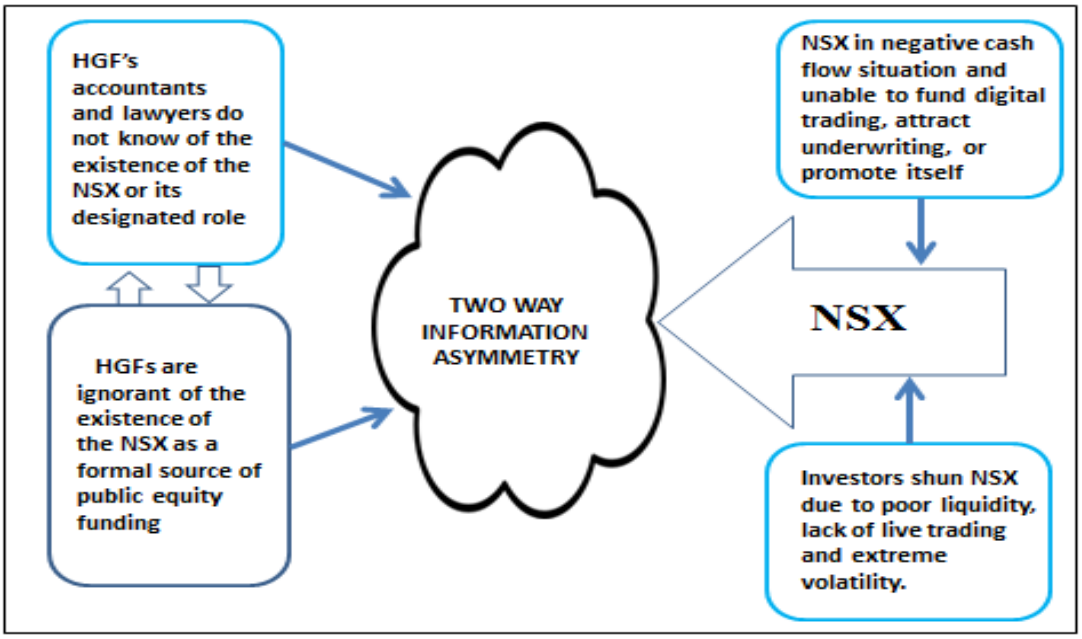


Figure 1.4 Impact of information asymmetry on the NSX.

1.4.3 Small-cap SEOs

SEOs are regulated capital-raising mechanisms available to publicly-listed companies. They are primarily driven by the issuer's short-term liquidity needs (DeAngelo *et al.* 2007a; Wen-Ben *et al.* 2013). DeAngelo *et al.* (2007) emphasised this 'survival' motive, claiming that *'*firms conduct SEOs to resolve a near-term liquidity squeeze, not primarily to exploit market timing opportunities.'

We used Akerlof's (1970) analogy of 'cherries' and 'lemons' in the used-car market to explain the influence of information asymmetry on small caps issuing SEOs. A preliminary analysis of the one-hundred forty Australian small caps listed in the S&P/ASX Emerging Companies Index (XEC) during our sample period reveals that while approximately 70% of the Index's listings had issued an SEO in the past three years, less than 5% (the cherries) appear to have delivered high abnormal returns.

An extensive body of literature (Drejer 2000; McDermott 2003; Chen & Wu 2007; Hafeez & Essmail 2007; Agha *et al.* 2012; Edgar & Lockwood 2012) holds that organisational core competence is the primary driver of competitive advantage. We hypothesised that organisational core competence is a powerful signal of future financial performance measured by return on assets and abnormal returns.

The first section of the study used fifty-three proxies to measure the predictive ability of five ex-ante SEO board-level core competencies, and tested them as signals of ex-post financial performance. The results were mixed and found little commonality between the predictors of return on assets and abnormal returns.

However, the second part of the study produced a predictive equation for abnormal returns. Using a constant, plus a series of discriminative coefficient weighted variable metrics, the short-term abnormal returns equation classified cherries and lemons with a 74.4% accuracy. The long-term version, utilising the same stepwise discriminant analysis, but a different more extensive set of variables, classified cherries and lemons with a 95.3% accuracy.

1.5 Contribution

These three essays explore the effects of information asymmetry on Australian demand and supply of SSPE funding from both industry and equity investor perspectives.

In the first study, we found that PE firms capable of taking equity positions in HGFs prefer investing in larger firms with less information asymmetry. The PE firms report that the boards of large firms exhibit stronger governance due to the presence of more independent directors on their boards. Financial transparency in larger firms is enhanced by compulsory external audits, and as a genre, they employ more sophisticated internal reporting and financial controls than their smaller competitors.

Contrary to pecking order theory, we found a higher than predicted acceptance of equity funding as part of an HGF/SME's capital structure. However, the acceptance was conditional that the equity partner was capable of providing advice and guidance that would further

grow the business. This need suggests that government policy should aim to combine academic and industry elements into a unified consultancy able to liaise between well-resourced but passive equity investors and compelling HGFs.

The first paper concluded that SSPE would be more attractive to PE firms if government policy mandated auditable financial controls on SMEs, especially now that simple cloud-based accounting systems can be accessed and audited by government departments, including the Australian Taxation Office.

The second paper's findings, on the ineffective operation of Australia's only secondary exchange, suggested that information asymmetry is a significant retardant to its operation. Firstly, the exchange requires a substantial improvement in the transparency of its admittance and disclosure requirements. Secondly, new government incentives, possibly tax-based, are needed to induce Australian institutional funds to underwrite IPOs for HGFs.

The third essay investigated the impact of information asymmetry on small-cap SEO investment and short and long-term financial performance. To overcome the adverse effects of information asymmetry, we developed a screening mechanism to enable investors to discern 'cherries' from 'lemons.'

This thesis's three studies will make a positive contribution towards mitigating the adverse effects of information asymmetry on the supply and demand of SSPE.

Chapter 2: Small-scale private equity: demand versus supply

Abstract

Pecking order theory contends that corporate managers seeking external funding prefer debt to equity (Myers & Majluf 1984). Contrary to this contention, we found that a significant percentage (19.9% of generic SME and 53.8% of high-growth firms [HGFs] respondents) of Australian small and medium-sized enterprises (SMEs) prefer equity funding to debt, and would seek equity funding if it were readily available. However, the preference for equity funding was conditional that the erstwhile equity funder bought business experience and expertise to the table.

In exploring the supply side of small-scale private equity (SSPE), our study reveals a mismatch between supply and demand, with supply being virtually non-existent, even for those SMEs categorised as HGFs. In order to attract investment from private equity (PE) firms, SMEs need to meet stringent criteria, and our study shows that only 1-2% of applicants may qualify.

2.1 Introduction

The transition from start-up funding to senior debt or equity funding is still not well-understood (Engel & Stiebale 2014). A small firm on a high-growth trajectory inevitably exhausts all its available sources of property-collateralised debt funding. Few small HGFs are able to meet Australian banks minimum requirements for revenue and total debt service ratio to qualify for senior debt, i.e., debt secured solely by the firm's assets (Schäfer *et al.* 2004). Small-firm equity funding is another option, but it is an under-researched alternative in academic literature.

Given that governments focus on policies that foster employment, the Organisation for Economic Cooperation and Development defines HGFs as firms with ten or more employees that generate employment growth of 20% or more for three consecutive years (Organisation for Economic Cooperation and Development 2014). Extant literature is in

broad agreement that only about 6% of any given SME population meet this definition of an HGF, but concludes that they create the majority of new jobs (Anyadike-Danes *et al.* 2009; Henrekson & Johansson 2010; Stangler 2010; Coad & Broekel 2012; Lopez-Garcia & Puente 2012; Mason & Brown 2013; Lee 2014). Daunfeldt *et al.* (2014) found that using employment growth to measure HGFs could be seriously misleading, as firms measured in 'terms of employment are not the same firms as HGFs measured in terms of productivity and their economic contributions differ significantly.' This study adopts revenue growth, rather than employment growth, as the independent variable most likely to attract equity funding.

The literature does not offer a definition of SSPE per se. The following is the authors' hybrid literature derived definition of SSPE (Eid 2006; Lewis & Zalan 2012; Bertoni *et al.* 2013): SSPE is a regulated investment into the small proportion of SMEs that are demonstrably high-growth, or on the cusp of high growth with investment amounts ranging from $1-10 million and a three to five-year investment timeframe. The SSPE investor is motivated by the prospect of a large capital gain on exit, which is usually affected by a trade sale or an initial public offering (IPO).

This study focuses on the two principal actors in the SSPE capital market: the financial intermediaries (seen as smaller, more nimble PE firms); and HGFs seeking capital to maintain their growth trajectory. The study focuses on small PE firms because the modus operandi of large PE firms is unsuited to HGFs. Typically, mainstream PE firms (listed or unlisted) employ highly-leveraged strategies to buy out under-performing and/or under-priced companies (Lockett *et al.* 2010). However, HGFs do not generate sufficient surplus cash flow to service the high costs of the debt leverage that characterises mainstream PE strategies.

This study explores the supply of SSPE. The question is whether or not smaller PE firms are disposed to invest in HGFs, especially those HGFs possessing the strong organisational core competencies (Laguna *et al.* 2012) needed to continue on a trajectory of exponential growth and value added.

The study also investigates the demand by HGFs for equity investment. Forsaith and McMahon (2002) and Brettel *et al.* (2009) provided some evidence that high-tech SME's sought, but were unable to obtain SSPE. This study extends this work by examining the extent of demand for equity investment, the reasons for seeking equity investment, and the amount of equity offered.

2.2 Theoretical background and hypotheses

Much of the supply-side literature concerns large PE firms seeking to take over listed companies, or debates on active or passive fund management (Chen *et al.* 2010). The larger firms focus on undervalued or poorly managed listed companies (Rath & Rashid 2016), and listed companies with ineffectual governance structures (Clarkson *et al.* 2016).

Policymakers seek to encourage growth, innovation, and productivity. Reducing information asymmetry in capital markets assists to achieve these objectives. Evidence of SME's restricted access to funding is well-documented in economic and financial literature (Beck & Demirguc-Kunt 2006a; Fatoki & Smit 2011a; Harjoto & Paglia 2011; Paulet *et al.* 2014).

The transition from start-up funding to qualifying for external senior debt or equity funding remains an under researched sequence of a HGFs life cycle (Schäfer *et al.* 2004). Long-held pecking order theory dictates that SME prefer debt to equity funding (Myers 1984). However, actualising this preference once the borrower's real property collateral has been exhausted is difficult (Mac an Bhaird & Lucey 2007). Put simply, Australian banks view issuing senior debt to SMEs as high-risk lending (Schäfer *et al.* 2004).

Senior debt is debt that has repayment priority over other less secured or more 'junior' debt (Welch 1997). Senior debt is secured solely by a charge over a firm's assets and cash flow, circumventing the constraints imposed by limited real property collateral. Shafer *et al.* (2004) concluded that few HGF's were able to meet the 'big four' Australian banks' minimum revenue requirements (in the author's experience, usually around $10 million p.a), or their stipulated total debt service ratio to qualify for senior debt funding. Such

restrictions strengthen the case for the SSPE funding of HGFs as an alternative to senior debt.

Equity investment into risky but optimistic ventures is one of the oldest of human commercial activities (Kerr *et al.* 2010). The simplest contemporary manifestation of this activity is business angels, wherein wealthy individuals make small non-intermediated equity investments into closely held start-up companies (Sørheim 2005). Business Angel funding should not be confused with SSPE, as the structure of an angel investment differs significantly from the structure of an SSPE investment. The latter, theoretically at least, targets established firms with a proven management team and a high-growth history (Lewis & Zalan 2012; Bertoni *et al.* 2013).

In summary, the capital structure of SMEs, while formulated on pecking order and agency theories, is heavily influenced by 'age, size, level of intangible activity, ownership structure and the provision of collateral' (Mac an Bhaird & Lucey 2007). Research on the capital structure of SME's concludes that owners of firms striving for growth are less averse to ceding control and equity dilution than their status quo focused counterparts (Myers 1984; Holmes & Kent 1991; Mac an Bhaird & Lucey 2007). Figure 2.1 illustrates the financing gap faced by firms aiming for high growth. Figure 2.1 suggests a strategic role for SSPE in bridging this gap between start-up and later stage funding. Few previous studies had attempted to explore or solve this gap (Smallbone *et al.* 1995; Lewis & Zalan 2012).

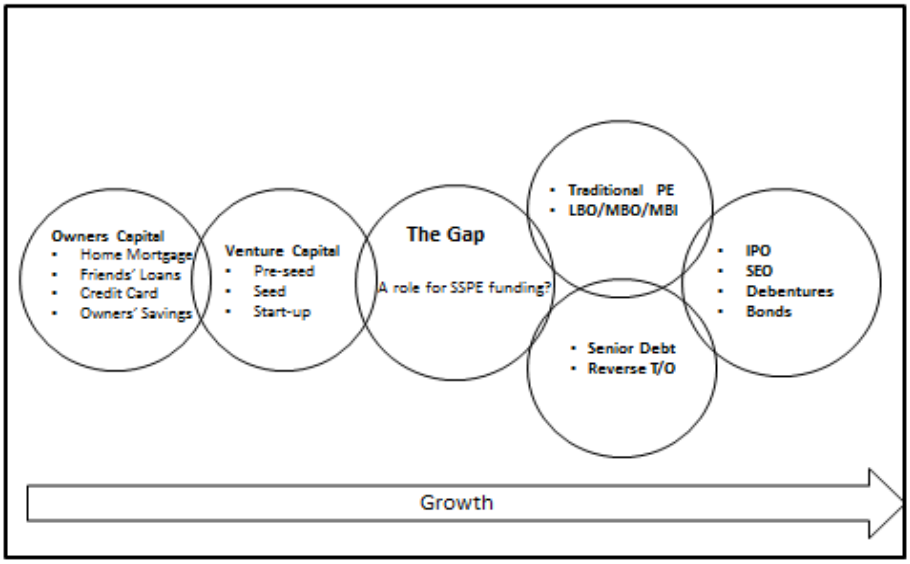


Figure 2.1 The role of SSPE in funding HGFs.

We hypothesise that information asymmetry inhibits SME's/HGF's ability to identify sources of external equity capital. The invisibility of SSPE supply may have distorted pecking order theory in a way that is analogous to the 'discouraged borrower's phenomenon' described by Myers and Majiluf (1984). Forsaith and McMahon (2002) argued that if no ready source of external equity capital exists, why would SMEs/HGFs even consider making it part of their capital structure?

The research question generated the following two hypotheses:

H1: The demand for SSPE among SME/HGFs is greater than the supply.

H2: SME/HGF's demand for SSPE is greater than pecking order theory infers.

2.3 Research design

Given the nature of the hypotheses, a mixed-methods descriptive-inductive/prescriptive-deductive approach is adopted in this study (Eisenhardt & Graebner 2007)**.**

2.3.1 Supply side

Quantitative methodology is inappropriate for the supply side, given the dearth of small-scale institutional PE funds. Eisenhardt and Graebner (2007) hold that a qualitative approach can make a significant contribution to theory development when the key theme is weakly researched, as is the supply structure of SSPE.

An extensive report on SME funding (Deloitte Access Economics 2014), commissioned by NSW Business Chamber, notes that the quantum of wealthy individuals investing in VC or SSPE is unpublished and unknown. The report holds that identifying Australian PE firms structured to provide SSPE, either directly or as intermediaries for large institutional funds, is difficult. The PE industry is well-known for its opacity when it comes to delivering performance metrics and reliable data to the public (Lewis & Zalan 2012).

Willert (2008) collated a database of one-hundred eighteen North American managed PE funds employing 1926 investment professionals and managing an aggregated US$225 billion. Willert (2008) discovered that while the industry was dominated by a few multi-

billion dollar mega buy-out funds, 'a strikingly large number (over 52%) of well-established private equity firms were relatively small,' employing only two to seventeen investment professionals. In recent times, deregulation has improved the liquidity of the small end of the US Private Equity market to the extent that small IPOs have declined (Ewens & Farre-Mensa 2018).We posited that the smaller firms described by Willert (2008) possessed the nimbleness and flexibility to make SSPE investments in HGFs. We sought their Australian counterparts as respondents to our study.

Fifty-five PE firms are registered with the Australian Private Equity and Venture Capital Association Limited (AVCAL). The investments undertaken by forty of the fifty-five AVCAL members are exclusively large-scale, but the AVCAL profiles of the remaining fifteen firms indicated a middle or lower-market orientation, and a willingness to undertake PE investments as low as $2 million. These fifteen firms became our supply side respondents.

Employing the techniques advocated by Dick (2000), semi-structured interviews were conducted with the CEOs or Chairmen of fifteen selected small PE firm respondents. The interviews were not recorded for two reasons. Firstly, many of the respondents were extremely sensitive to confidentiality issues and declined to have their telephone interview recorded. Secondly, it was felt that conservative, high-level executives may be franker with their responses if they knew that the conversation was not being recorded. The latter prediction proved true, as several executives disclosed relevant information that required editing to avoid identification of their firms.

Extensive notes were taken during the interviews and transcribed immediately once the interview terminated. The transcriptions were condensed and 'coded' in the 'open coding' manner devised by Strauss and Corbin (1998). In 'open coding,' the researcher attempts to code or categorise each question's answer to one of a number of emerging 'essences,' thus the progressive weighting of each code indicates the essences significance. In addition, the technique of 'memoing' (Glaser & Barney 1998; Dick 2000) was integrated with interview notes, tabbing any potential emerging hypothesis discerned during or immediately after interviews.

The structured questions sought:

- The age of the firm and its relationship with AVCAL.
- The structure of the firm.
- The sources of their investment funds.
- How they sourced their acquisitions.
- The methodology they employed to select and screen their acquisitions.
- Whether they sought outright ownership or part equity in their targeted acquisitions.
- Were they aware of potential high yielding investment potential in SME/HGFs?
- What was their minimum investment in absolute terms and why?
- Did they spread investments to mitigate risk?

2.3.2 Demand side

Australian confidentiality and privacy statutes prevent government agencies from releasing historical financial data on SMEs, even if the contributing SME sources are kept anonymous. A questionnaire was therefore deemed necessary to obtain specific data that measured the business profile of SMEs and HGFs against their demand for PE, but how to cost-effectively circulate such a questionnaire to a statistically significant sample of Australian SME respondents was an issue.

The solution was to integrate the demand side SSPE questions into the NSW Business Chamber's annual survey questionnaire, which is electronically administered to its 26,000 members. We thank the Chamber for this accommodation. The Chamber advised against framing questions that demanded precise empirical answers, as prior experience had shown that their members were unlikely to undertake the calculations needed to answer them. However, the extensive demographic data elicited by the Chamber's own survey questions enabled us to identify and separate high growth and potentially high-growth SMEs from generic SME respondents.

The NSW Chamber's SME members surveyed represented virtually all industries and ranged in size from self-employed up to two-hundred employees. A total of 1,090 completed questionnaires (4% of the Chamber's total number of members) were returned.

Statistical analysis was applied to the demand side questionnaire to measure the extent of the respondents demand for SSPE and identify the causal factors thereof.

2.4 Supply side results

Lewis and Zalan's (2012) findings on the reclusiveness of the PE industry were confirmed. Potential respondents cited fear of breach of confidentiality as grounds to withhold interview consent, despite formal written assurances of anonymity. Thirteen of the sought fifteen AVCAL member respondents eventually agreed to grant interviews. The other two respondents were recruited from AVCAL member recommended family PE firms. A series of structured questions (See Appendix B) was put to each of the respondents in the course of a thirty-minute telephone interview. Seven of the fifteen PE firms interviewed had been operational for ten years or longer, the oldest for some seventy years.

2.4.1 Structure of Australian private equity firms

The Limited Partnership structures that characterise US and European PE firms are not recognised by ASIC, APRA, or the Australian Tax Office (ATO) in Australia. The only approved Australian Limited Partnerships are related to Venture Capital. These are structured as state-registered Early Stage Venture Capital Partnerships (ESVCLPs) and Venture Capital Partnerships (VCLPs) and attract significant tax concessions. A respondent, whose minimum investment was $10 million, commented, 'I think some of my competitor's VCLPs have more to do with Private Equity than VC. They are stretching it. The trouble is that ASIC-approved Unit Trusts come with a lot of expensive and complex regulatory baggage. We spend more time on governance paperwork than growing our assets.' Another respondent emphasised the ASIC cap on the size of Australian VCLPs; 'ASIC permits VC style Limited Partnerships to be extended to PE providing the total investment assets of the partnership do not exceed $250 million. If the total investment assets exceed $250 million, then the investments must be in the form of a Unit Trust.' The same respondent opined that 'further investment into start-ups and SMEs is being held back as a direct result of the current inconsistency in the tax rules that apply to the different classes of investors in VCLPs and their extension into limited partnership small-scale Private Equity.'

Midway through the interviews, the 2016/17 Australian Government budget was released, flagging some form of limited PE partnership (a Collective Investment Vehicle or CIV) to be introduced for the income years starting on or after 1 July 2018 (Industry 2016). This proposal is aimed at reducing the onerous ASIC compliance load associated with Investment Trusts.

As depicted in Figure 2.2, thirteen of the fifteen respondents relied on variants of ASIC-approved Unit Trust structures to channel institutional and wholesale funds into their PE investments. The dominant typology was a branded unit trust-based fund. In this structure, each fund owned and managed multiple Special Investment Vehicles (SPVs), with each SPV housing an individual portfolio firm. Individual fund risk was mitigated by the diversity of investment and the quarantined SPVs. Only one respondent assigned a separate Unit Trust for each investment portfolio firm.

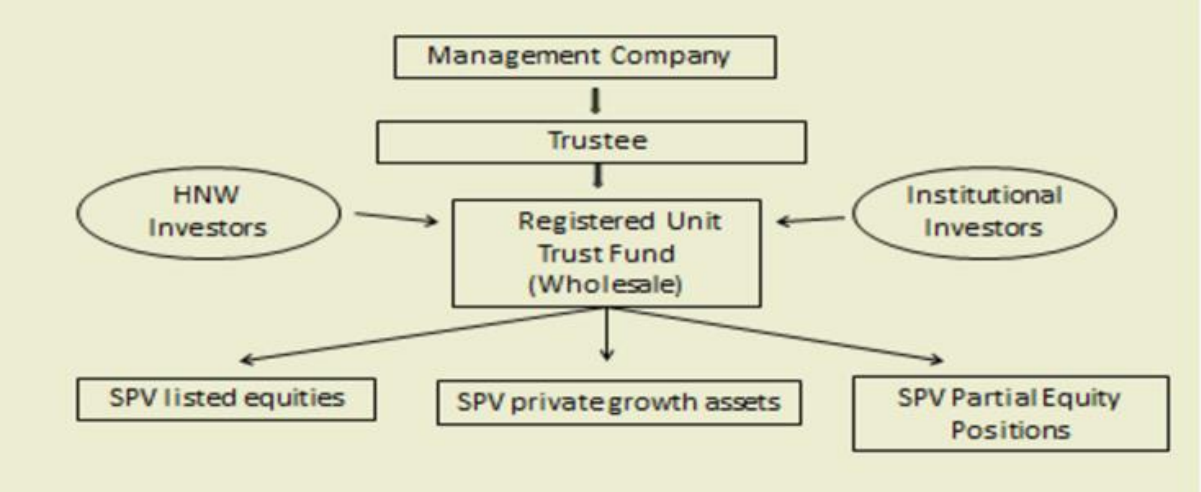


Figure 2.2 Model of a typical PE investment fund.

Without exception, all respondents' Unit Trusts were licensed by ASIC as wholesale trusts, thus avoiding the need to meet the far more complex ASIC and APRA regulations that govern retail trusts. A high-profile respondent with a legal background stated, 'The compliance requirements of registered retail funds are very complex and expensive to implement. Consequently, retail investors are not part of our fund sourcing model.' Unlike retail trusts, managers of wholesale PE Funds/Unit trusts cannot discuss or accept investments from 'mom & pop' non-sophisticated investors. Nor can they advertise or use financial planners to promote their Funds.

Given the current prohibition in Australia of the simpler internationally recognised limited partnership model, the Australian PE respondents were still able to devise strategies to debt leverage their assets to advantage. The most utilised domestic strategy involved assigning debt to the SPV portfolio companies (the Fund's liability was therefore quarantined within SPV). A veteran respondent observed, 'It's perfectly legal for a portfolio firm to take out a bank loan, and it's made easier if the parent PE firm has high level connections with the bank.'

2.4.2 Raising investment funds

ASIC prohibits wholesale licensed PE funds from raising capital directly from the public. The PE firms are left with the choice between dealing with sophisticated investors termed high-net-worth (HNW) individuals or institutional superannuation funds. ASIC defines HNW individuals as individuals able to produce an accountant's certificate proving they own minimum net assets of $2.5 million, and receive a minimum gross income of $250,000 p.a. Some 56% of institutional PE capital is sourced from large Australian superannuation funds (Trends & Austrade 2010). A respondent summed up the current sourcing practices of nine of the study's fifteen respondents: 'Our sources are 100% institutional Superannuation funds. HNW individuals and Self-Managed Super Funds (SMSFs) are too small for us.'

It became clear as the interviews progressed that the five smallest PE respondents did not have the connections, track record, or access to the large compelling deals ($50 million +) needed to attract institutional capital. One of these five respondents complained that the restrictive nature of their wholesale fund licence 'made it illegal to engage with licensed financial planners and hence made access to capital from large superannuation funds more difficult.' Instead, apart from their own 'skin in the game,' the five smallest PE firms relied almost entirely on a zealously-guarded network of HNW investors. Three of these smaller respondents had been sourcing from the same HNW individual investors for more than a decade. Funding emanating from HNW investors is more likely to be measured in individual contributions of one million or less. Nonetheless, one of these five smaller respondents

summed up a consensus opinion on SSPE: 'That there is no shortage of sophisticated investor funds for a compelling well researched proposal.'

The outlier ex-mining firm PE firm adopted a different capital raising strategy. They used the weight of their ASX listing to issue a secondary equity offering to raise capital for acquisitions in a narrowly-defined industry sector. The outlier's respondent observed, 'We intend to operate as direct owners of the portfolio assets, as our objective is to be a single industry based firm. This strategy avoids us being seen as an investment firm pure and simple and avoids the complexity and onerous requirements of Unit Trusts.'

2.4.3 Taxonomy of SSPE investments

The literature on characteristics and attributes that private equity firms seek when selecting targets is largely confined to listed targets where firm-specific characteristics differ from the unlisted targets that are the focus of this paper. Sought characteristics of listed targets include lower stock volatility and abnormal returns (Osborne *et al.* 2012), although as with the respondents to this study, long-term growth prospects are a common independent variable.

Our respondents were selected on the basis that their published AVCAL profile suggested an ability to execute SSPE, albeit one respondent's profile indicated that the firm invested in SMEs as a distressed asset. When later interviewed, all respondents were emphatic that compelling middle and lower-market HGF investment opportunities were scarce in Australia, thus justifying the generalist approach adopted by twelve (80%) of them.

The twelve generalist respondents agreed that industry specialisation would generate a higher return on their investments, but claimed 'Here in Australia we can't get the comparative advantage of specialisation because there aren't enough opportunities.' The three that did take equity positions in a narrower range of industries, targeted industries that required sophisticated skills, included medical technology, nursing homes, IT services, and financial services (see Table 2.1).

Table 2.1 Investment profiles of private equity firms in the sample.

No	Age of Firm in Years	Corporate Structure	Number of Employees	FUM $ millions	Funds raised from	Number of Investments	Av investment $millions	Min investment $millions
1	12	WUN	10	300	INT	6	10 to 100	10
2	9	WUN	17	230	INT	9	25 to 50	20
3	13	LP & WUN	17	n/a	HNWI	2	n/a	10
4	14	LP & WUN	6	83	INT & HNWI	5	n/a	2
5	5	LP & WUN	15	1,700	HNWI	n/a	2 to 25	1
6	77	MT	n/a	n/a	INT	n/a	n/a	n/a
7	39	WUN	46	1,975	INT	n/a	n/a	≥ 10
8	1	WUN	3	n/a	HNWI	1	1 to 45	≤1
9	18	WUN	15	650	INT & HNWI	11	1 to 5	1
10	17	WUN	4	n/a	SMSF	3	1 to 4	≤1
11	16	WUN	9	n/a	INT	5	100-500	50
12	1	LE	7	n/a	INT & HNWI	7	1 to 4	1
13	8	WUN	2	n/a	HNWI	1	3 to 10	3
14	3	WUN	2	n/a	HNWI	1	2 to 20	2
15	1	WUN	3	n/a	HNWI	12	4 to 40	0.5

Legend: WUN = Wholesale Unit Trust; MT = Master Trust; LP = Limited Partnership; LE = Listed Entity; SMSF = Self-Managed Super Fund; HNWI = High Net Worth Individual; INT = Institutional Superannuation Fund

No respondent currently held a sub $1 million equity investment, nor did they appear motivated to do so. Various protean reasons were advanced to explain their lack of interest in taking equity positions in sub $1 million HGFs. The reasons included:

1. The cost of due diligence in absolute terms was very much the same regardless of the size of the target. Thus, it was more efficient to apply this cost to a larger target because in percentage terms, it represented a lower upfront cost. A respondent who had previously worked for a very large US PE firm, and recently relocated to a much smaller Australian PE firm, commented, 'the problem with small investments is that small $$ yield small $$ returns and small $$ fees but still requires a lot of time and frictional costs. In NYC at my $4 billion fund I had a team of 5 at my disposal and the ability to incur significant deal costs – even if the deal failed. Here in Australia doing small investments I can't afford significant expenses or the risk of dead deal costs, so I have to pick my deals carefully and do the work myself to contain costs.'

   The sole respondent who had experimented with sub $1 million investments advised: 'We folded the trust three years ago – it only lasted three years – the cost of carrying out due diligence on small private companies far outweighs any significant capital gains, both in percentage and absolute terms.'

2. The information asymmetry that typifies small firms is often exacerbated by the owner's manipulation of profits by opaque journal entries, basic accounting systems running unlocked without an audit trail, out of date records and general lack of internal controls. A respondent contributed that, 'Auditing small firms and their primitive accounting systems is risky and costly.'

3. Growth by 'build and buy strategies' can be difficult to implement. A larger respondent observed, 'Buy and build is a furphy with really small acquisitions. Small firms can't be cheaply and easily consolidated under a single brand due to huge variations in cultures, management styles and systems.'

All respondents screened targets against a checklist of 'must-have' characteristics prior to commencing in-depth due diligence. Table 2.2 summarises the investment criteria common to all twelve generalist respondents.

Table 2.2 Investment criteria identified by all respondents.

A minimum market value circa $5 million (based on a 3 to 5 multiple of earnings before interest, taxes, depreciation, and amortisation (EBITDA).
Strong industry fundamentals (dominant or good market position within its industry).
Ability to grow investment (via revenue, margin enhancement or cost out).
Compelling exit appeal – ability to IPO or synergic trade sale.
Proven calibre visionary management team with 'skin in the game' to align interests with PE investor.
Strong, sustainable cash flows.
Potential to apply build and buy strategy (Growth by acquiring competitors)
Equity available at reasonable multiple of EBITDA (3 to 5 times).
Low-geared existing capital structure (potential to be leveraged by debt).
The ability to exert influence on the acquisition's operations and strategic direction, even if such control was legally exercised from a minority holding. (e.g., only a 30% holding, but an agreement that the PE firm could appoint a controlling vote director onto the acquisition's Board).

The twelve generalist respondents emphasised that they applied the same standard selection criteria to all equity investments, be they large or small. The respondent that

specialised in acquiring and restructuring/rebuilding distressed companies sourced them from administrators or receivers. They were acquired at a low expense/value ratio, and met an investment criteria that required the target's net tangible asset backing to exceed the acquisition price.

2.4.4 Percentage equity sought

Only two of the respondents sought 100% equity. Sixty percent (nine respondents) were prepared to accept a minimum 50/50 joint venture, although they preferred a majority shareholding. However, the two youngest PE firms were prepared to fund as low as 20% equity, providing the acquisition agreement allowed them to exercise ultimate control through a structure of voting and non-voting shares.

The respondent who managed the largest number of unit trusts stated, 'We deliberately seek a minority position provided we have the formal ability to influence key strategic decisions and exercise some operational control.'

2.4.5 How investments are sourced

SSPE firms stressed that they had to proactively search for investment-grade opportunities. All cited lack of investment grade opportunities as the major retardant to the growth of SSPE. A typical respondent summed it up: 'We only do three deals a year – we find some ourselves-others come to us – but let me tell you it (sic – finding investment grade investments) is like finding a needle in a haystack.'

Confidentiality was an issue with four of the respondents, who were reluctant to detail their investment sourcing modus operandi. Several of the respondents were aware of the literatures claim of six to ten-thousand HGFs in Australia. They questioned the validity of the data, as the theoretical munificence of HGFs was not supported by their field experience. For example, one respondent had only found a single complying investment in the previous twelve months, in spite of employing an extensive and innovative search methodology.

Another respondent for a listed firm that had attempted to target HGFs commented, 'Sure, on paper there are supposed to be ten-thousand or more high-growth SMEs out there and that was the big attraction to us. However, tracking down high-growth SMES that meet our investment criteria proved extremely difficult. Members of our network may recommend firms, but few of their recommendations survive our preliminary due diligence. For example, most of them have management that lacks the ability to carry them to the next level. That means that if we proceed, we become a recruiting firm.'

The respondent for a long-established PE firm also criticised what he saw as the misalignment between the optimistic claims of the journal articles and the reality of identifying investment grade HGFs in the field: 'Academia makes no distinction between journal articles and commercial reality.'

The second re-occurring issue was the high-value owners of rapidly growing, but relatively unprofitable and cash-strapped, firms put on their equity. A respondent commented, 'When they (the target's owners) learn that we are from private equity, they start mouthing stratospheric EBITDA multiples. They value their operations at up to ten times EBITDA.'

Six respondents claimed that exploiting smaller HGF's latent growth potential was often hampered by lack of profits in absolute terms. A small HGF's EBITDA may not be sufficient to fund an effective replacement team if the incumbent management team lacked the vision and competence needed to take the firm to the next level. The respondent for the largest PE firm interviewed for this study stated, 'We see SMEs as a much higher due diligence risk due to their relatively uneducated managers. Economies of scale mean that their EBITDA will not support a package to attract the calibre of manager we require.'

Several respondents saw $300-400,000 remuneration packages as essential to attract and retain visionary strategic managers. The need to initially subsidise high calibre management salaries meant that larger acquisitions, with earnings sufficient to cover the remuneration of exemplary executive talent, were more attractive.

The respondents sourced acquisitions from:

1. Leads in the financial press.

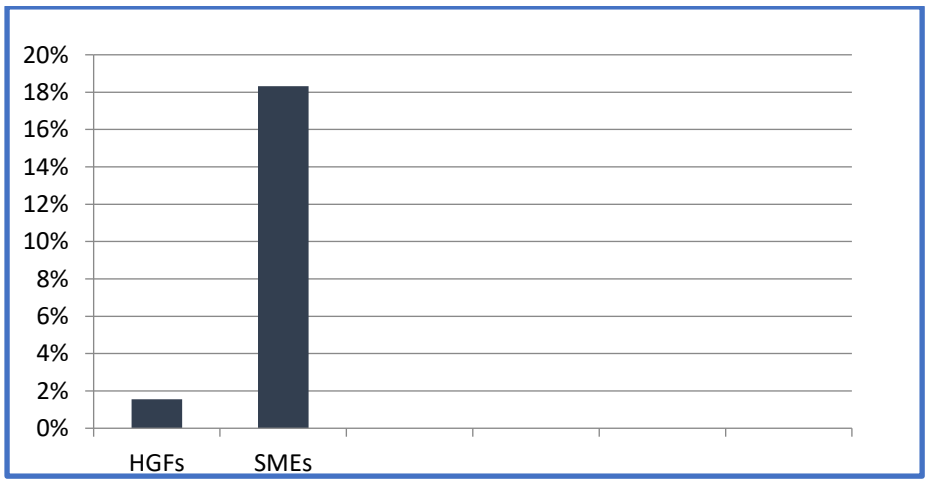
2. Networking industry and executive trade associations.
3. Financial intermediaries, such as networked accountants, bank managers and finance brokers. The latter often charged commissions for successful introductions.
4. The respondents HNW investors who bought their own deals to the table.
5. The insolvency profession.
6. Focused internet searches for award-winning or fastest growing SMEs and franchises.

2.5 Demand side results

To gain insight to the demand for SSPE data from a questionnaire sent to SME members of the NSW Chamber of Commerce is analysed. Key results are presented in the figures and tables below.

Almost 20% (19.91% or 217 firms) of the total respondents indicated that they would be prepared to consider equity funding (See Figure 2.3). The responding SMEs consisted of HGFs (5.69%) and other SMEs (94.3%). This is representative of the breakdown in the population. The surprising result is that 18% of the other SMEs are seeking equity capital. A closer reading of Figure 2.3 shows that 53.8% (1.99/3.70) of HGFs sought equity funding rather than bank debt, thus supporting hypothesis 1.

2.5.1 SMEs/HGFs seeking funding



100% of respondent population	
HGFs	Other SMEs

Figure 2.3 Proportion of combined SME/HGF population seeking equity funding.

The size of the two-hundred seventeen firms seeking equity by employee numbers are shown in Figure 2.4.

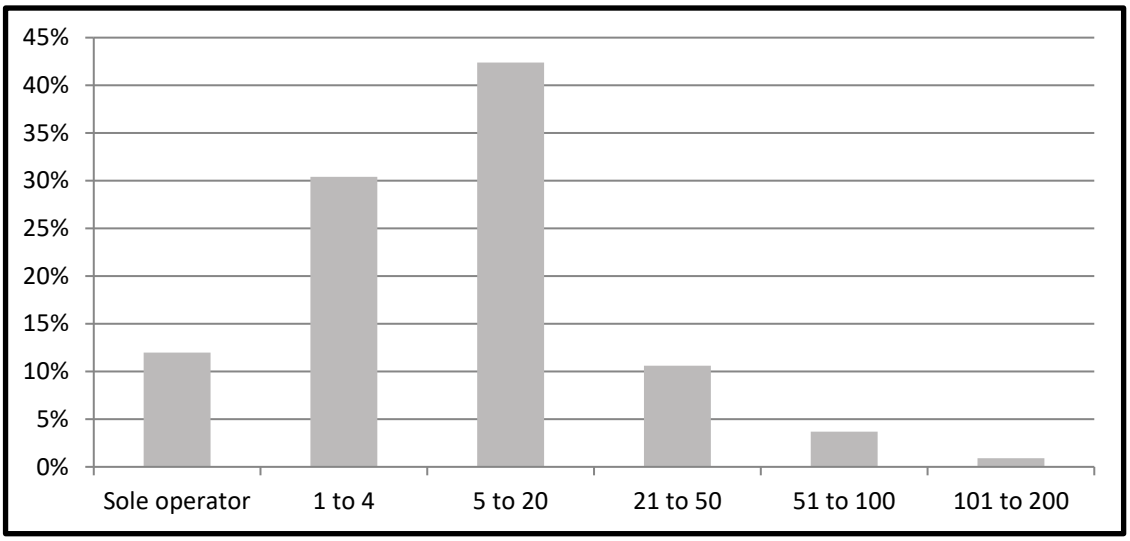


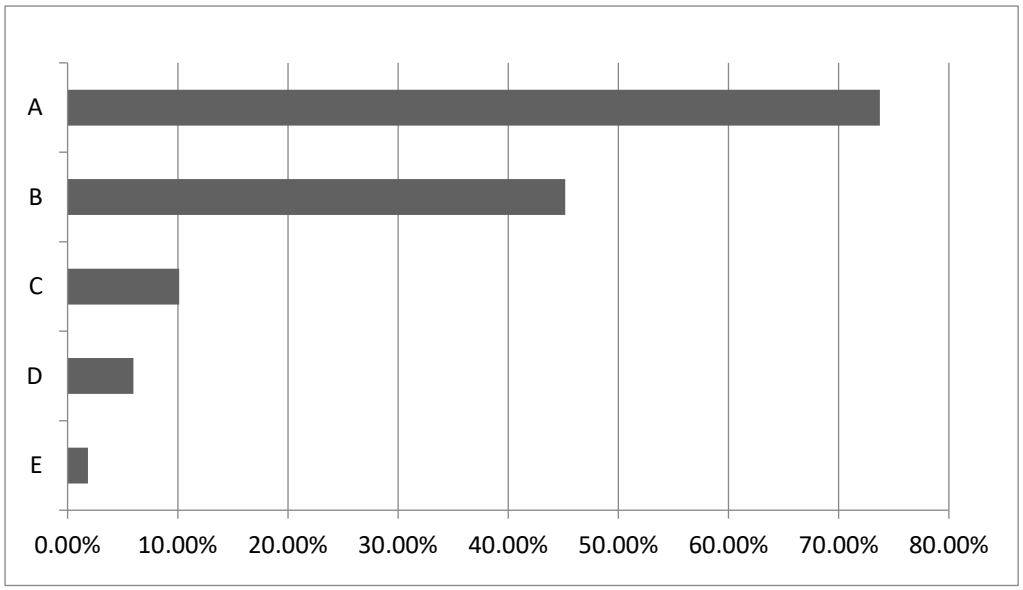
Figure 2.4 Percentage of SMEs seeking equity by employee numbers.

Based on their forecast revenue growth projections, 5.3% (or fifty-eight of the total one-thousand ninety-two respondents) were categorised as HGFs, a proportion close to the 6% HGF segment identified in offshore studies of entire SME populations (Anyadike-Danes *et al.* 2009; Henrekson & Johansson 2010; Stangler 2010; Lopez-Garcia & Puente 2012; Mason & Brown 2013; Coad *et al.* 2014; Lee 2014). Of the fifty-eight firms classified as HGFs, apart from projecting substantially increased revenue, all of them expected to employ additional staff. As depicted in Figure 2.3, 35% of these HGFs sought equity funding. Pecking order theory (Myers & Majluf 1984) predicted that SME owners seeking external funding prefer debt over more expensive equity. However, Forsaith and McMahon (2002) found that high-tech start-ups, HGFs, and nascent HGFs regard equity funding with more equanimity. A more recent study by Brettel *et al.* (2009) confirms that HGFs have a more positive attitude to external equity, and suggests the increased acceptance of SSPE emanates from a

'perceived' increase in the value of the firm which outweights the nefgatives, including loss of control.

2.5.2 Reasons for seeking funding

Figure 2.5 shows that respondents' reasons seeking an equity partner differed from the pecking order theory's dominant reason, i.e., difficulty in accessing bank debt. Of the two-hundred SME respondents prepared to embrace equity funding, only 14% or 6.17% expressed difficulty obtaining a bank loan. Although not illustrated separately in Figure 2.5, only two of the twenty HGFs seeking equity were refused bank loans. This is contrary to the expectations based on pecking order theory (Myers & Majluf 1984), which predicts that owners seeking external funding prefer debt over more expensive equity. This supports hypothesis 2 and is consistent with Forsaith and McMahon (2002) and Brettel *et al.* (2009), demonstrating that small firms are different from large publicly-listed firms. Rather, a dominant motivation of respondents (78.34% of SME respondents: 52.9% of HGF respondents) for seeking equity funding was to tap the business knowledge of an experienced investor/partner to assist in growing the firm. Equity-seeking SMEs (40.1%) and HGFs (46.4%) were also motivated by Reason 'C,' the prospect of ongoing funding as the firm continued its growth trajectory.



Reason	Reasons that HGFs seek equity funding
A	An experienced investor/partner could bring valuable new skills to assist the business to grow.
B	The right equity partner could continue to fund the business as it grows.
C	It doesn't matter where the funding comes from, my business is a winner.
D	My business has difficulty obtaining a bank loan.
E	We are confident that the business will eventually be listed on the stock exchange.

Figure 2.5 Reasons that SME/HGFs seek equity funding.

2.5.3 Percentage equity offered

The percentage equity share offered by the equity-seeking respondents varied from 10% to 50%. Figure 2.6 shows that the five to twenty employee class of SME were prepared to sacrifice 30% of their equity for SSPE funding. Only a single sole operator offered an absolute controlling interest. The modal class of equity offered for each size of SME (where size is based on the number of employees) is shown in Figure 2.6. Although not illustrated in Figure 2.6, proportionately the HGF figures were similar.

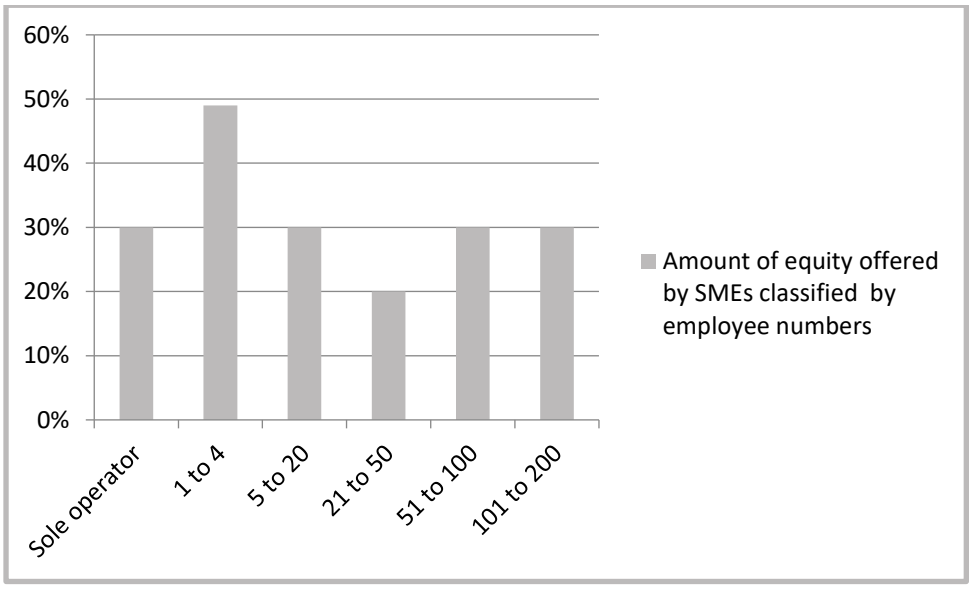


Figure 2.6 Amount of equity offered for SSPE.

2.6 Explaining the absence of SSPE from SME funding

We found that three tiers of information asymmetry inhibit the launch of a formal SSPE industry. Firstly, potential providers are invisible to HGFs. Secondly, HGFs, even those with a compelling investment case, are invisible to PE firms. Thirdly, the literature confirmed financial opaqueness of small firms makes them unattractive to professional equity investors.

The dominant operational explanation for the absence of SSPE from SME funding paradigms is a lack of supply. We found that while the PE firms were unanimous that SSPE funding was available for 'compelling' investments able to pass the industries' formidable screening criteria, the taxonomy of the descriptor 'compelling' appeared to be more qualitative than quantitative. Witness the PE firms' wide-spread employment of the term 'visionary management.' The specific organisational core competencies that may constitute 'visionary management' are unresearched.

In light of PE firm's perceptions that there is a scarcity of compelling SME investments, how can small firms signal their quality to them? This is especially difficult when the relevant PE firms are camouflaged by 'the size and fragmentation of capital markets' (Simeonov 2015). The literature is mute on this issue, but our experience suggests that the most obvious answer is by emulating larger firms and employing professional capital raising intermediaries familiar with capital markets, but that involves agency (brokerage) costs.

Equity agency or frictional costs are themselves a further causative factor contributing to the scarcity of SSPE. Mainstream PE funds are biased to large-scale positions, partly because agency and out-of-pocket costs per transaction are low when calculated as a percentage of the total investment (Engel & Stiebale 2014). Large targets generally have a history of external auditing, which effectively reduces the cost of financial due diligence.

The costly ASIC licensed intermediary structure is also a deterrent to SSPE growth. The 2016 Australian Government budget flagged a form of limited partnership (CIV) likely be introduced for the income years starting on or after 1 July 2018 (Industry 2016). The proposed new CIVs will be required to meet similar audit criteria to the current managed investment trusts, but will be easier to set up and administer. They can be leveraged with

debt. Investors in the new CIVs will generally be taxed as if they had invested directly. It is possible that introduction of CIVs will facilitate SSPE, but not enough is yet known to make this statement with any certainty.

2.7 Conclusions

SSPE is a multi-faceted capital funding model which in practice is seriously restricted by information asymmetry. The actors are all but invisible to each other. Hypothesis 1 was confirmed. This study found no significant supply of SSPE. PE firms target 'compelling' acquisitions managed by a visionary team, preferably with 'skin in the game,' who possess outstanding organisational core competencies that enable them to act unilaterally. Given high-performance management already in place, the PE firms limit their operational involvement in portfolio companies to generalised top-down strategic advice. Generic SMEs were a non sequitur, as only larger, proven HGFs had the potential to meet PE firms' investment criteria. From a PE firm's perspective, an HGF acquisition's growth would depend on its in situ proven visionary management team, or as last resort a recruited high performance management team. The latter strategy necessitates the targeted investment generate sufficient EBITDA to cover the salaries of the recruited high-performance executives.

Hypothesis 2 was confirmed, albeit with conditions. We found that the demand by SME's for equity funding was far greater than pecking order theory led us to expect, especially as the demand emanated from SME's that qualified for bank funding. We found that the greater-than-expected HGFs' demand for equity capital was predicated on both the utility of strategic management guidance from the PE investor and the prospect of ongoing funding. We did not explore the dilution effects of ongoing equity funding or a capital structure involving PE firm backed senior debt.

We found that the PE respondents were unanimous that SSPE funding is always available for 'compelling' investments able to pass the industries' formidable screening criteria. The taxonomy of the descriptor 'compelling' is profit-based, but the descriptor 'visionary management' is as much qualitative as quantitative. The organisational core competencies that underpin the perception of 'visionary management' require further research.

Equity agency and frictional costs are another causative factor contributing to the scarcity of SSPE. The PE firm respondents unanimously agreed that they applied the same intensive due diligence procedures, operational and financial, to all acquisitions regardless of size. Therefore, as contended by Briozzo and Vigier (2009), SSPE transactional costs were likely to be high for the sub $1 million funding. Mainstream PE funds are biased to large-scale positions, partly because agency and out-of-pocket costs per transaction are low when calculated as a percentage of the total investment (Engel & Stiebale 2014). Large targets usually have a history of mandatory external auditing, which further reduces the cost of financial due diligence. SSPE would be more attractive to investors if government policy enforced auditable financial controls on SMEs, especially now that simple cloud-based accounting systems can be accessed and audited by government departments, including the Australian Taxation Office.

Lastly, PE firm respondents held that larger acquisitions exhibited less information asymmetry, not only because most of them were legally subject to external audit. As a genre, they incorporated more sophisticated internal reporting and financial controls than their smaller competitors.

In summary, we found that three tiers of information asymmetry inhibit the launch of a formal SSPE industry. We explained the gap between demand and supply for equity funding, but offered a richer more detailed rationale than the antecedent reasons evinced in the literature. In particular, this study's data suggests that pecking order theory may no longer apply to SMEs as a generic class.

Chapter 3: Small public listings

3.1 Introduction

Lack of access to finance presents a major retardant to the growth of the SME sector in Australia. Demand and supply of finance to the sector is influenced by factors that do not apply to large firms. SMEs have a pecking order of preference for finance; they prefer internal equity to debt and debt to external equity. Nonetheless, a significant number of medium and growth businesses seek external equity to fund their growth trajectory. The National Stock Exchange of Australia (NSX) is Australia's sole small-firm orientated source of public listings.

The results indicate an involuntary information asymmetry exists between the NSX and SME owners and their advisors. Employing a qualitative grounded theory methodology, in-depth interviews were conducted with six owners and thirteen accounting and legal advisors. The study found that the NSX's invisible profile results primarily from an endemic failure to raise equity capital for its participants. Operationally, this failure stems from lack of underwriting, thin trading, inefficient and expensive trading processes, and remote locations. Currently, the NSX it is unable to attract enough listings to generate the income required to fund a more effective operation. Serious efforts to mitigate the debilitating information asymmetry between SME owners and the NSX are needed to increase the utilisation of this little-known bourse.

3.2 Theoretical background

Access to external finance is an essential input of sustainable business growth. According to pecking order theory, an innate need to maintain control means that few SME owners include external equity funding as part of their capital structure (Myers 1984). Nonetheless, medium-sized and high-growth entrepreneurial firms that pursue high growth have limited access to debt funding (RBA 2010), and must turn to external equity from private or public

sources. Potentially, high-growth firms may also seek external equity at the start-up phase from business angels and venture capitalists (Berger & Udell 1998).

Contrary to the generalist findings of a wide body of literature (Paulet *et al.* 2014), the existence of a credit gap for SMEs in Australia continues to be denied by major banks (RBA 2010). However, there is an undeniable gap in the supply of external equity to finance business growth (Scarborough 2012). Private equity providers follow rigorous screening processes, are very selective, and provide funding to less than 1% of applicants (Scarborough 2012). By global standards, the private equity market in Australia is small. Data from the Australian Private Equity and Venture Capital Association Ltd. shows that over the ten year period to 2012, the Australian Venture Capital Industry raised over $A2billion in funds and invested about $A1.5billion in 250 companies (Industry 2016). The Australian equity capital raisings compare with over $US27 billion of equity capital invested in 3826 companies in 2012 in the US (PWC 2013). As a result of the lack of domestic equity funding, a significant number of high-growth Australian companies have moved overseas (Industry 2013).

Private equity providers require a mechanism to liquidate their investments, and initial public offerings (IPOs) provide an effective strategy to do so. Without such an outlet, the venture capital industry cannot operate effectively. High-growth firms can also access public equity directly via IPOs if they are able to meet listing requirements. The benefits of an IPO extend beyond access to capital. An IPO minimises the firm's cost of capital and maximises its value (Brau & Fawcett 2006); improves borrowing capacity (Pagano *et al.* 1998); creates publicity for the issuing firm (Demers & Lewellen 2006); and enhances its reputation with customers, suppliers, and other influential third parties (Witzel 2005). An IPO is a powerful tool for accessing and retaining key employees (Broude 1997). Lastly, IPOs provide a first-mover advantage to businesses with a winning technology or product, plus sufficient liquidity to sustain them until their technologies are proven (Maksimovic & Pichler 2001).

3.2.1 Access to public equity on the main and second stock exchanges in Australia

Australia has three stock exchanges:

The mainboard Australian Securities Exchange (ASX) is the entity that operates the Australian Stock Exchange (descriptor 'main stock exchange') and the Sydney Futures Exchange, and facilitates trading in securities and derivatives including shares, futures, options and warrants. Market capitalisation (2013) of the Australian Stock Exchange was over $1.5 trillion (ASX 2014).

The second board (or junior exchange) is the National Stock Exchange of Australia (NSX) Unlike the ASX, the NSX is set up and managed specifically to cater for the listing of small to medium companies, hence its globally accepted descriptor as a 'secondary exchange.' The NSX itself is listed on the ASX. The 2012 market capitalisation of the NSX was about $3.5 billion (NSX 2012).

The third licensed exchange is Chi-X Australia. The Chi-X is a trading exchange only and is not licensed to raise capital by conducting IPOs.

Mainboard stock exchanges, such as the ASX, are not designed to accommodate the small-scale offerings of SMEs (Berger *et al.* 2001; Gregory *et al.* 2005). Most developed Western economies offer an effective secondary stock exchange able to provide SMEs with lower cost and less onerous listing requirements. To be listed on the ASX, a firm must have $10 million in total assets or $2 million in net tangible assets; at least 400 shareholders, each with a minimum investment of $2,000 with 25% of shares held by unrelated parties; or a minimum of 400 investors each with at least $2,000 in shares (ASX 2014). Candidates must also meet the profit test, which requires that there are going concerns with $1 million cumulative profits over the three years prior to listing and a minimum profit of $400,000 in the immediate 12 months to listing (ASX 2014). Listing requires the services of underwriters, accountants, lawyers, and share registrars. These experts charge high fees and some of

them, such as underwriters, base their fees on the amount of capital raised. Fees associated with listing on the ASX, together with the initial cost charged by the stock exchange, can push the cost of a typical listing to more than $1 million.

By comparison to the ASX, the listing criteria and fees for an IPO on the NSX are modest (NSX 2009). The NSX requires an applicant to have at least fifty investors, each with a minimum $2,000 in shares with 25% of said shares held by unrelated parties. An applicant must also have a minimum market capitalisation of $500,000. The NSX does not require a minimum profit amount in the immediate past years, but must be able to demonstrate a somewhat subjective 'two years' adequate track record of performance' (NSX 2009). Alternatively, the firm can have the issue underwritten by an approved underwriter. Compared with the ASX, the listing requirements for the NSX are within the reach of many medium-sized Australian firms. Nonetheless, very few issue an IPO on the NSX.

The NSX's ineffective performance, in comparison with its counterparts in the UK, the US, and Canada, has serious implications for Australian economic growth. For the financial years ended December 2011 and 2012, the NSX raised $A626 million and $A359 million respectively (NSX 2014). This compares with $A6.88 billion and $A6.1billion raised for the same periods (LSE 2014) by the UK's secondary exchange, the Alternative Investment Market (AIM).

Despite the large body of literature devoted to IPOs, there are not many studies focused on the performance of secondary exchanges (Rosseau 2007). No study has yet examined the NSX's effectiveness in facilitating SME access to public equity. Nor have researchers assessed the attitude of Australian accountants and lawyers to secondary exchange IPOs. This paper seeks to fill this gap.

3.3 Research design

A qualitative interpretive research paradigm employing grounded theory was deemed appropriate. The participants in each group were interviewed successively. Each interview lasted between forty-five minutes and an hour. Ethics approval was obtained from Southern

Cross University. Participants were informed of their rights with respect to the interviews, which were recorded and transcribed with their permission.

Effective use of grounded theory requires asking good questions and making comparisons from extensive coding and analysis of the interview data (Strauss & Corbin 1998). A semi-structured questionnaire was used and respondents were encouraged to speak openly on the issues contained in the questionnaire. The questionnaire emanated from an extensive literature review and the experience of the researcher as a fund manager and business broker. It was also reviewed prior to implementation by two appropriately qualified research supervisors.

Open coding as recommended by Strauss and Corbin (1998) was employed as the primary data analysis methodology. Each line, sentence, and paragraph of the transcribed data was analysed and categorised for common as well as unique responses to the questions. Following Dick's (2000) suggestion, sequential phases of data-collection, note-taking, coding, and memoing were completed individually for each interview, prior to conducting the subsequent interview. Successive interviews were continued until they yielded no further significant information, that is, until 'saturation point' was reached (Schutt 2004). Interviews and analyses were conducted firstly with the owners, followed by their lawyers and accountants, and finally with unrelated independent accountants and lawyers.

3.4 Sample

A list of medium-sized businesses, with market values between $A1 – 2 million, sold within the last ten years, was requested from each of six brokers known to the author. The respondent businesses were selected randomly from each of the lists. Owners of five businesses nominated their accountants, who also agreed to participate in the study. In addition, three of the owners nominated their lawyers as useful informants. Four other accountants were randomly selected from a list of accountants with medium-sized clients with whom the author has dealings in the course of his business. The final two respondents were a high-profile independent legal representative who claimed to be well-versed in capital-raising and a newly graduated accountant.

3.5 Results

The findings are sequenced by participant type, starting with the owners as the primary respondents, followed by their nominated accountants, independent accountants, and finally the lawyers. The findings at point of saturation are presented for each participant group.

3.5.1 SME owners

Only one of the SME owners had a university degree, an MBA. Four were actively seeking to exit their businesses which they had owned and operated for at least twenty years. Their businesses generated EBITDAs from $300,000 to over $1 million, thus they fell within the primary criteria for exiting via an NSX IPO. The remaining two respondents were seeking between $3 million and $5 million to fund major acquisitions. Both groups of participants had considered an equity partner in the form of a sophisticated investor, but never considered an IPO on the NSX. Saturation point was reached by the fourth interview on the following issues:

1. None of the respondents were aware of the role of the NSX. Banks were seen as the monopoly source of business capital apart from loans from family or acquaintances.
2. With one exception, none knew what an IPO meant or entailed. The exception held an MBA, was aware in broad terms of the advantages of an IPO, but was totally unaware of the existence of the NSX.
3. None had a formal exit plan. They believed that the only exit pathway available to them was to sell the business on the open market or through a trade sale.
4. Lawyers were not seen as a source of strategic financial advice.
5. All respondent's relied heavily on financial advice from their accountants, including all aspects of raising capital.

3.5.2 Nominated external accountants

All respondent accountants had tertiary qualifications and held public practicing certificates as Chartered Accountants, Certified Practising Accountants, or Public Accountants. They were all regarded as trustworthy advisors by their SME clients. The SME owners emphasised

that they closely followed their accountant's advice, using euphemisms such as 'why have a dog and bark yourself' to justify their unquestioning faith in their accountants. Saturation point was quickly reached by the third interview with the nominated accountants. It became clear that the majority knew very little about raising public equity, especially the mechanics of an IPO, and knew nothing about the NSX. The findings at the saturation point were as follows:

1. They were not aware of the acronym NSX or what it stood for.
2. They did not understand the potential role of the NSX in exiting or raising capital for SMEs.
3. While most were broadly aware of what an IPO on the ASX meant, none had a basic understanding of the procedures or protocols for listing on an exchange.
4. They believed that an IPO would be prohibitively expensive, as would the ongoing costs of maintaining a listing. Estimates ranged from hundreds of thousands to millions of dollars.

3.5.3 Other accountants in public practice specialising in SMEs

Of the four independent accountants in public practice who held themselves out as business advisors, only one was aware of the NSX and the basic steps involved in an IPO. The other three accountants lacked knowledge of small-cap IPOs and had not heard of the NSX. The accountant with some knowledge of the NSX stated that he would never recommend an IPO to a client, as it cost hundreds of thousands if not millions of dollars to list. He confused the cost of an IPO on the NSX with that on the ASX. He also saw the requirement of an annual audit for listed companies as a major obstacle for two reasons: finding a registered auditor and the cost of an audit. In spite of leading questions, the specific steps to an NSX IPO, including developing a prospectus, meeting compliance requirements, controlling equity dilution, and underwriting, were totally unknown to this participant. The lack of IPO knowledge displayed by the four accountants who were independent of the owners, replicated the ignorance of the owners' nominated accountants:

1. With one exception, none knew what the acronym NSX stood for. This respondent believed that it meant Newcastle Stock Exchange, unaware that the exchange had been renamed the National Stock Exchange in December 2006.

2. They did not understand, even conceptually, how the NSX could play a role in any effective exit or capital-raising strategy for SMEs. The concept of a relatively low-cost listing on the NSX appeared to be little more than a theoretical abstraction, remote from their day-to-day preoccupation with tax accounting for their SME clients.

3. All were aware of what an IPO on the ASX meant in the broadest sense, but no one was aware of the most basic procedures or protocols required for an IPO.

4. All were strongly convinced that an IPO would be far too expensive for an SME. They were unanimous in their views that the ongoing costs of listing were unaffordable to SMEs.

3.5.4 Lawyers

None of the owners advocated their lawyers as a reliable source of financial advice. Two described their lawyers' knowledge of finance in depreciating terms. In spite of this, three nominated lawyers were interviewed. Two represented major law firms specialising in raising equity for listed and non-listed companies and the other was a suburban lawyer who described himself as a business specialist. While they understood the meaning of the acronym IPO and were aware of the role of the NSX, they had no experience or understanding of the structure or execution of an IPO on the NSX. They stated that they had never even considered a second-tier IPO as a solution to any of their clients' capital needs. None of them could recall any formal, graduate or undergraduate training in the legal or financial structures of IPOs.

A high-profile public equity specialist lawyer was interviewed for his views regarding the NSX. He knew of the NSX, but held quite strong views on its ability to facilitate access to public equity. While acknowledging the increasing demand for public equity from the

second stock exchange, the lawyer was adamant that he would not recommend the NSX to his SME clients, citing the following reasons:

1. The NSX was unable to attract underwriters for prospective issuers.

2. Chronically thin trading made the NSX unattractive to institutional and sophisticated investors.

3. The NSX was not connected to the Bloomberg System.

4. Incompetent administration of the NSX had resulted in a series of well-publicised financial losses. The substantial losses marred the image of the NSX when compared to the strictly governed and highly profitable ASX.

5. More effective offshore secondary exchanges existed. The lawyer was especially supportive of the Toronto Stock Exchange Venture Exchange (TSXVE), claiming it had access to deeper pools of investment capital, yet it charged less to issue an IPO than the NSX. His firm had recently facilitated a successful Australian listing on the TSXVE.

3.6 Discussion and conclusions

Significant information asymmetry exists between the NSX and its potential SME listing participants. The study revealed that the NSX's primary function as an equity capital-raising bourse was unknown to its SME target market or the market's advisers. The void existed despite a wide body of literature, both academic and professional, promoting IPOs as an effective source of capital for high-growth SMEs. As a consequence of this involuntary information asymmetry, SME owners and trusted advisors, including lawyers, accountants and business consultants, did not even consider an IPO as an exit pathway or source of growth capital.

Smaller accounting firms' failure to recognise and understand the role of secondary exchanges was a pivotal factor in explaining the NSX's dearth of listings. The study's results

confirmed the reliance of SME owners place on their accountants for advice on raising capital or exiting their businesses. In accordance with earlier studies (Mole 2002; Hayes 2003; Schutt 2004; Hartcher 2005; Ford 2009), we found that when Australian SME owners used a single source of external advice, it was invariably their accountant rather than their bank manager or lawyer.

A conundrum was evident. If accountants played such a key role in devising financial strategies for their SME clients, why did they know so little about IPOs or the NSX? The short answer came from one of the respondent accountants: 'If IPOs on the NSX were so effective, we would all know about it and be advising our clients accordingly.'

The study's result also suggested that IPOs were absent from the curriculum of tertiary programs in accounting. The sole new accounting graduate interviewed had never heard of Australia's only second exchange and did not know what the acronym IPO meant. It could be argued that this was an isolated case, but the data collected from the qualified accountant respondents showed that they had little or no knowledge of the structure or benefits of IPOs. The results also suggested that the benefits and processes involved in executing a secondary exchange IPO are not covered in the post graduate professional programs of accounting institutes.

Despite the lack of IPO acumen in the lower tiers of their profession, professional accounting bodies have occasionally published articles aimed at educating their accredited members on the complexities of taking large companies, as distinct from SMEs, to IPO. For example, Wilkinson and Buchanan (2010) authored a comprehensive paper on IPOs for the Australian Institute of Chartered Accountants. The paper did not mention the NSX, focusing only on the ASX. Their target audience was delineated by their introductory comment (Wilkinson & Buchanan 2010) 'Companies need to have a market capitalisation of at least $100 million before considering listing publicly.' No similar papers have ever been published by accounting institutes aimed at enticing SMEs to list on the NSX.

The NSX's inability to promote itself to small accounting practices, many acting as trusted advisors to SMEs, was acknowledged by the exchange's business development manager.

The NSX executive blamed a lack of funds as the prime barrier to launching an effective promotional campaign aimed at smaller accounting practices.

SME owner/respondents disavowed lawyers as having expertise raising capital expertise. This finding is contrary to Robson and Bennett's (2000) UK finding that lawyers are among the most effective external sources of advice on financing. It is also contrary to Mole's (2002) research involving UK SMEs, where lawyers ranked second only to accountants as trusted business advisors.

Most of the respondent business lawyers understood the concept of an IPO in general terms, stemming from their own investment activities on the ASX. With the single exception, none of them showed a comprehension of the role or protocols of secondary exchanges. None of them could recall any formal, graduate, or undergraduate training on the legal or financial structures of IPOs. However, unlike the accountant respondents, the lawyer respondents showed interest in learning more about IPOs on the NSX. They conjectured that expertise in small-cap IPOs could be a profitable addition to their practice.

The exception referred to above was a highly-experienced capital-raising lawyer who understood the role of the NSX, but doubted its effectiveness as an exchange. He cited serious flaws in the NSX's ability to competitively service both its listed companies and their investors. His attitude mirrored research findings (Di Stefano 2004) that a lack of willing underwriters was a major barrier to small-cap IPOs on emerging exchanges. Many underwriters avoid small-cap IPOs because they do not generate sufficient underwriting fees to cover the cost of auditing etc. (Osterle 2006). The dearth of institutional underwriting support for NSX IPOs is reflected in its Listing Rule No 3.6 (NSX 2009), which allows issuers to self-underwrite, although few appear to have the financial resources or expertise to do so.

The capital-raising lawyer respondent saw extremely thin trading as the second significant causal factor of the dearth of listings on the NSX. Thin trading is characteristic of the small-cap shares; they are less liquid, and trade in small volumes and less frequently (Antoniou *et al.* 2002; Abuzarour 2004). However, the ultra-thin trading on the NSX makes it an outlier

when compared the average daily trades on the NSX with the London Stock Exchange's AIM and TSXVE. The average number of daily trades on the AIM in 2009 was 19,150 (Staple 2009) and 17,990 for the TSXVE (Investment Industry Regulatory Organization of Canada 2009). This compares with 495 trades on the NSX for the entire 2009 calendar year (NSX 2014). Poor liquidity adds to the cost of buying and selling the shares and to market volatility, due to buying and selling pressures on small and infrequent transactions (Antoniou *et al.* 2002).

The lawyer respondent's third criticism concerned the absence of a link to the Bloomberg System and to an electronic trading system. This discourages small volumes of trade while the mandatory use of brokers significantly increases the cost of trading to investors. The study found that NSX investors were seriously disadvantaged by broker induced delays on price movements, when compared to the ASX's almost instantaneous electronic system. Modernising secondary and emerging exchanges by using an electronic trading system and trading online enhance their attractiveness to both issuers and investors (Lauterbach 2001).

Overall, our findings revealed a financial tautology. Lack of patronage of the NSX is attributable to its invisibility, poor liquidity, and thin trading, abetted by an antiquated and costly transaction system. Yet the NSX cannot upgrade its systems and processes and effectively promote its operations until it reverses its own negative cash flow. We conjecture that a take-over of the NSX by a Tier 1 private equity firm or the ASX may be the only strategy to achieve viable secondary stock exchange in Australia. Both the AIM and the TSXVE are closely linked to their respective main stock exchanges. They trade on the same floor and use the same electronic trading system as their mainstream partners.

Tertiary institutions and professional institutions could also assist by including the financial and administrative structure of secondary exchange IPOs in their curricula. From a macro-economic viewpoint, an enhanced awareness by SME owners and their advisors of the benefits of public equity funding would contribute to a more efficient Australian secondary exchange and drive employment. The escalating volume of trades on the low-cost TSXVE and its consequent contribution to the similarly populated Canada's recent economic

growth strongly support this contention (Investment Industry Regulatory Organization of Canada 2009).

Chapter 4: Reducing information asymmetry: The performance determinants of small-cap SEOs

4.1 Abstract

We investigate the statistical and economic effect of fifty-four organisational core competencies on post-seasoned equity offerings (SEO) abnormal returns (ARs) for S&P/Australian Securities Exchange (ASX) Emerging Companies Index (XEC) firms having SEOs between 1 July 2010 and 30 June 2014. We employed stepwise discriminant analysis (rather than logistic regression as the sample size was small) which demonstrate significant positive relationships to CEO's tertiary education, EPS, technology transfer and the adoption of disruptive technology. We develop a long term AR predictive equation which classified high-quality (e.g., cherries) and low-quality (lemons) firms with a 95.3% accuracy. If investors adopt a trading strategy of buying the cherries and shorting the lemons, this would achieve superior ARs (as high as 300%) three years post-SEO.

4.2 Introduction

Mistrust emanating from asymmetric information, and associated agency problems, drives a wedge between investors and listed firms seeking additional equity funding (Li & Zaiats 2017). Information asymmetry makes investors less able to distinguish between high and low-quality firms. This is problematic for firms, as they are forced to issue pricing discounts to attract investors, a strategy that increases their cost of capital.

The adverse effects of information asymmetry are particularly pronounced in SEOs (Teoh *et al.* 1998; He *et al.* 2010; Comiran *et al.* 2016). SEOs are regulated capital-raising mechanisms, primarily driven by the issuer's short-term liquidity needs (DeAngelo *et al.* 2007a; Wen-Ben *et al.* 2013). DeAngelo *et al.* (2007) emphasise a 'survival' motivation, claiming that 'firms conduct SEOs to resolve a near-term liquidity squeeze, not to primarily exploit market timing opportunities.'

Prior studies on mitigating information asymmetry have focused on enforced disclosure requirements (Russell 2015) or enhanced governance (Kiel & Nicholson 2003; Jackson *et al.* 2008; Chemmanur *et al.* 2010; Huang & Tompkins 2010; Muller *et al.* 2014; Ferris *et al.*

2017). However, there appears to be little relationship between these factors and a firm's financial performance (Wahba 2013).

In small-cap SEOs, the issue price discount usually correlates with the perceived amount of information asymmetry (Brous *et al.* 2001). However, according to Carpentier *et al.* (2012), investors are more concerned with the validity of ex-post-SEO financial performance projections than the size of the issue discount. Clearly, there is a need for a discriminatory mechanism to dissolve the shroud of information asymmetry from performance projections.

This study builds on McDermott (2003) and other researchers' work by testing organisational core competencies as predictors of the financial performance of smaller listed firms. We test fifty-three proxies for five organisational core competencies against empirically measured post-SEO performance. We develop a competency screening algorithm to address information asymmetry, and assist investors to determine the probability of a firm achieving its projected financial performance.

Akerlof's (1970) theory of the impact of information asymmetry on used-car values offers a behavioural explanation that can be applied to the pricing of small caps. Akerlof (1970) contends that in a market place where the intrinsic differences between 'cherries' and 'lemons' are clouded by information asymmetry, there will be a discount on the price of high-quality cherries and a premium paid for low-quality lemons. Akerlof (1970) is suggesting that information asymmetry conceals both positive and negative information.

The study extends the scope of post-Akerlof (1970) research, which mostly focuses on adverse information concealed or distorted by information asymmetry (Leland & Pyle 1977; Reber & Fong 2006; Li & Zhao 2008). We argue that the effect of understated or missing positive information is underresearched. We hypothesise that the quantum of concealed positive and negative information can be determined by measuring a suite of the firm's core competencies.

Lahti (1999) defines organisational core competence as 'essentially a construct based on the existence of a concept that is not in itself directly measurable,' but holds that 'related' indicators or proxies are measurable. The seminal paper by Prahalad and Hamel (1990)

places the evolution of organisational core competencies at the highest level of an organisation.

We attempt to measure the impact of most (but not all) core competencies empirically, as distinct from the literatures' plethora of subjective measures (sometimes self-assessed) corporate and individual competencies. Wright (2011) observed that 'subjective measures of human capital seem to dominate HRM literature.' He was referring to the large body of literature linking a taxonomy of behavioural traits to corporate performance. Such competencies include emotional-IQ (Ellstrand *et al.* 1999), ethics and governance (Kiel & Nicholson 2003; Jackson *et al.* 2008; Huang & Tompkins 2010), leadership (Mahsud 2006; Wood & Vilkinas 2007; Papalexandris & Galanaki 2008), net-working skills (Wincent & Westerberg 2005; Yoo & Kwangsoo 2012), cultural empathy (Giberson *et al.* 2009), and corporate social performance (Cochran & Wood 1984).

Most of the cited studies of subjective competencies measure the resulting corporate performance in the same qualitative terms. For example, Wood and Vilkinas's (2007) study assumed high levels of CEO performance because 'all managed highly successful organisations,' but omits to define what makes an organisation 'successful.' McDermott's (2003) respondents subjectively self-assess their corporate success. There is little empirical evidence linking the cited subjective competencies with absolute financial performance. To address these issues in the prior research, the current study uses more objective measures to proxy for the core competencies.

4.3 Motivation and theoretical background

From an investor's perspective, the ability to validate a firm's financial projections prior to making the investment is a high priority. Building on Akerlof's (1970) seminal work on lemons and cherries, Leland and Pyle (1977) and Myers and Majiluf (1984) theoretically show that information asymmetry distorts investment decisions. Myers and Majluf (1984) argue that a firm is more likely to issue equity when it knows that its stock is overvalued. McLaughlin *et al.* (1996) analysed SEOs issued between 1980 and 1991, and found that issuing firms 'exhibited significant gains in performance immediately prior to the SEO, but a

20% median change in cash-flow ratio during the three year period following the SEO.′ We suggest that the SEO investors suffered losses because they could not discern the positive or negative quantum of the issuer's organisational competitive advantage at the time they made the investment.

There appears to be no prior study directly linking SEO information asymmetry, either positively or negatively, with competitive advantage generated by organisational core competence. For three decades, the Industrial Organisational (Porter 1985) and the Resource-Based View (Barney 1991) models have dominated explanations of competitive advantage. The Industrial Organisation (IO) model assumes that because most firms have similar strategically relevant resources, competitive advantage can only be gained when a firm finds the industry with the highest profit potential. In contrast, the Resource-Based View (RBV) model holds that the key factors for success lie within the firm's internalised resources and capabilities. In the RBV model, the firm's strategies are dictated by how best to maximise its internal resources relative to opportunities and threats in the existing industry, rather than move to a new or different industry offering enhanced profit potential. A recent study (Huang *et al.* 2015) conceptualised the two approaches in terms of temporary and sustainable competitive advantage, suggesting that a move to a more profitable market (the IO concept) yields only a temporary competitive advantage. According to the RBV model, a firm 'possessing superior technological resources or abilities can obtain a better outcome of sustainable competitive advantage' (Huang *et al.* 2015). This contention is strongly supported in the literature (Drejer 2000; McDermott 2003; Chen & Wu 2007; Hafeez & Essmail 2007; Agha *et al.* 2012; Edgar & Lockwood 2012), and by the publicised performance of large corporations such as GE, Samsung, and Apple. However, this has never been adequately tested against smaller firms.

For small-cap stocks, empirical evidence supporting claimed organisational core competencies is often difficult to extract from an SEO issuers' self-serving prospectus or Information Memorandum (IM). Ex-ante predictions may be exaggerated by endogenous agency influences characteristic of low levels of organisational core competence (Maksimovic & Phillips 2002). Analysts do not follow small caps, meaning expert

independent critiques of a firm's endogenous organisational competencies are virtually non-existent (Bowen *et al.* 2008).

The motivation for this study is twofold: (1) to build on the competency determinant work that commenced with Prahalad and Hamel (1990), and continued with researchers such as Hafeez and Essmail (2007) and McDermott (2003); and (2) to also use the study's findings to reduce the deleterious effect of information asymmetry that inhibits investment in smaller firms.

4.4 Hypothesis development: The drivers of competitive advantage

Capital market participants seek reliable financial performance markers to determine the veracity of the financial performance projections contained in a firm's capital-raising memorandums or prospectuses. As cited earlier, the literature holds that poorly-managed firms (Akerlof's lemons) tend to use information asymmetry to overvalue equity and mask underperformance (Carpentier *et al.* 2012). It could also be argued that non-disclosure of positive information may also mask the determinants of potentially high-performance companies (Akerlof's cherries).

Small-cap stocks traditionally occupy the densest end of the information asymmetry continuum (O'Shea *et al.* 2008). The quantum of asymmetry also correlates with some degree of equity owned by board members (agency theory), which is higher in small firms (Bowen *et al.* 2008; Abosede & Oseni 2011; Carpentier *et al.* 2012; Iddon *et al.* 2013).

While earnings management is one possible explanation of post-SEO underperformance, the literature advances a number of alternative explanations. Poor performance is associated with the lack of marketing acumen (Mizik & Jacobson 2007), poor governance (Kiel & Nicholson 2003; Hoje & Yontae 2007), and the ineffective allocation of SEO proceeds (Maksimovic & Phillips 2002; Jeanneret 2005; Autore *et al.* 2009; Bayless & Jay 2013). These examples suggest that diminished core organisational competencies are drivers of competitive advantage and, ultimately, organisational performance (Agha *et al.* 2012).

Hamel and Prahalad (1994) defined a firm's competence as the bundle of skills, aptitudes, or technologies that enable a firm to deliver a 'unique benefit' to its customers. The concept of

'unique benefit' is interchangeable with 'competitive advantage.' Hafeez and Essmail (2007) interpret Hamel and Prahalad's (1994) concept of 'organisational' core competence as representing 'those specific capabilities that represent the collective learning of the organization and provide it with real competitive advantage.' Hamel and Prahalad's (1994) idea motivated a substantial and ongoing research effort to identify which core competencies are the primary drivers of organisational competitive advantage (Drejer 2000; McDermott 2003; Chen & Wu 2007; Hafeez & Essmail 2007; Agha *et al.* 2012; Edgar & Lockwood 2012). McDermott (2003) cautions that 'not all competencies bestow a firm with superior advantage,' adding 'to be considered core, the competence must meet three criteria: customer value, competitive differentiation and extendability.' McDermott (2003) stops short of explicitly measuring her 'superior advantage' in terms of financial performance, unless profitability is considered a component of 'extendability.'

Huang *et al.* (2015) emphasise that the determinants of 'superior technological resources or capabilities' are high levels of fundamental core competencies. This study measures the effectiveness of five fundamental core competencies (the independent variables depicted in Figure 4.1) in terms of absolute financial performance (the dependent variable).

We hold that the stipulated five core competencies are the fundamental endogenous drivers of financial performance. The firm's Board of Directors including the CEO (assuming the CEO sits or directly reports to the Board) are the custodians of the firm's overarching suite of organisational core competencies. Although, in a detailed technical sense, some input may emanate from a lower management level (Hamel & Prahalad 1994). This concept is depicted in Figure 4.1.

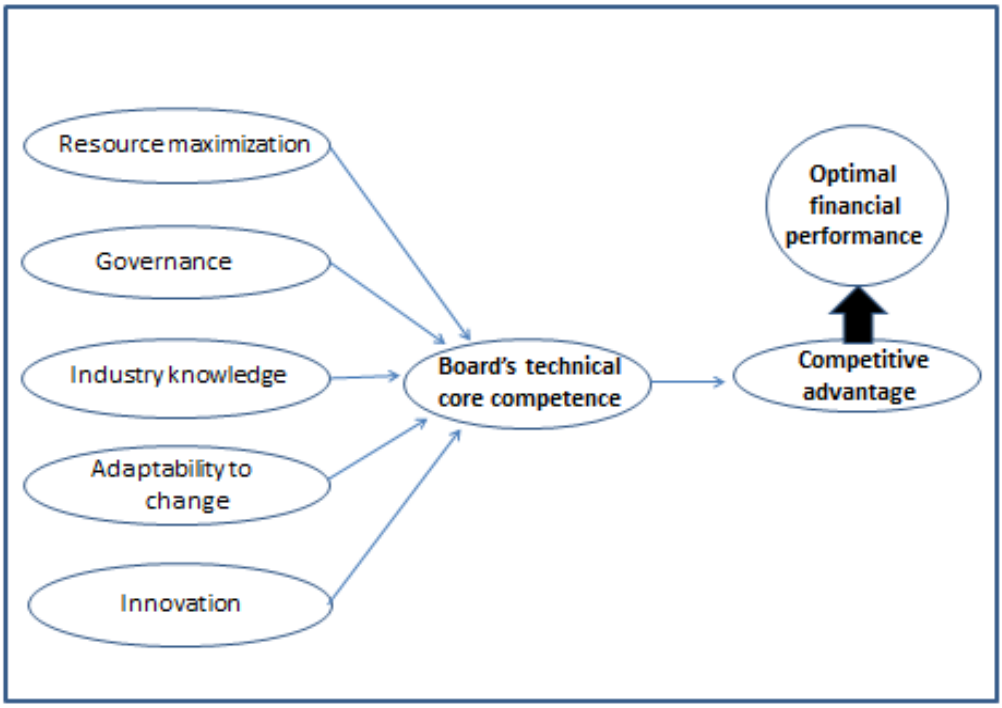


Figure 4.1 Core competencies, competitive advantage and firm performance

The independent variables are shown on the left of Figure 4.1, with the dependent variable 'financial performance' depicted on the right. The depicted independent variables contribute to financial performance as follows:

4.4.1 Competency: Resource maximisation

The limited availability of finance is a well-recognised inhibitor of growth in SMEs (Becchetti & Trovato 2002), but the ability to maximise the productivity of financial resources already at hand has is a neglected area of research, though it is a marker of entrepreneurial success (Dwyer & Kotey 2016).

In the context of this study, resource maximisation competency refers to the ability to utilise a given quantum of financial resources to achieve optimal financial performance**.** For example, the allocation of the proceeds of an SEO to a new project is a growth generating strategy compared to applying the proceeds to fund existing operational expenses or retire debt (Agrawal *et al.* 2010).

4.4.2 Competency: Strong governance

'Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment' (Shleifer & Vishny 1997). An extensive body of literature (Cochran & Wood 1984; McGuire *et al.* 1988; Kiel & Nicholson 2003; Matolcsy *et al.* 2004; Hoje & Yontae 2007; Liao *et al.* 2011; Eggers *et al.* 2013; Huang *et al.* 2015) correlates a firm's success (mostly measured in non-financial terms) with the strength of its corporate governance.

4.4.3 Competency: Explicit industry knowledge

We define explicit industry knowledge as a firm specific competency that entails the in-depth knowledge, understanding, and expertise to act as a technical authority within that industry. McClelland (1973); Wang *et al.* (2004); Chen and Wu (2007); Laguna *et al.* (2012); Huang *et al.* (2015) all found that industry-specific technical competencies were drivers of sustained competitive advantage. Laguna (2012) ranks industry and technical skills (explicit industry knowledge) as the critical competencies that have 'significant and direct effects on business growth.'

Explicit industry knowledge is the dominant component of a firm's intellectual capital. Barney (1991) holds that intellectual capital is the major corporate strategic asset capable of generating sustainable competitive advantage and superior financial performance. The difference between a firm's market value and book value may be explained by the perceived value of its intellectual capital (Edvinsson & Malone 1997; Ming-Chin *et al.* 2005).

4.4.4 Competency: Adaptability to change

Adaptability to change means achieving success by recognising and adapting to the changing needs, wants, and aspirations of target markets (Walsh & Lipinski 2009). Eggers *et al.* (2013) contend that a purely responsive and reactive approach to customer needs will not lead to sustainable business growth, but an entrepreneurial strategy based on innovation will. Lee

(2010) directly links marketing capability with innovative capability, finding that the composite adaptive competency is a significant driver in sustaining competitive advantage.

4.4.5 Competency: Innovation

Lee's (2010) incremental innovation competency may generate higher levels of financial performance, but it is not the same as a disruptive innovation competency; though the latter may be complimented by the former (Cowden & Alhorr 2013). Bower and Christensen (1995) defined disruptive innovation as 'an innovation that creates a new market and value network that eventually replaces leading firms, products and alliances.' Christensen (2006) contends firms that continue on a progressive trajectory of adaptive innovation run the risk of being blind-sided by a disruptive innovation. Disruptive innovation has been advanced by Christensen (2006) as a game changer in adding market value, even for firms that are early adopters rather than creators (Cowden & Alhorr 2013; Notarantonio & Quigly 2013; Jones *et al.* 2016). Disruptive innovations are more likely to emanate from the smaller, more agile listed firms analysed in this study rather than their global counterparts.

We hypothesise that:

H1: The five core competencies are positively related to ex-post-SEO financial performance.

H2: The five core competencies can be combined to predict post-SEO financial performance identifying whether a firm is a cherry or a lemon.

4.5 Research design

4.5.1 Sample

The sample was derived from the population of constituent firms on the S&P/ASX XEC as of 30 June 2017. The index has a maximum quota of two-hundred securities that are selected based on aggregate market capitalisation and liquidity criteria. They rank between three-

hundred fifty to six-hundred on ASX by capitalisation at the time of their inclusion. The average firm in our sample had a market capitalisation of $260 million (see Table 4.1). The small-cap market (termed the microcap market by the Australian Securities Exchange) was considered highly responsive to H1 and H2, as it suffers from thin trading-induced pricing sensitivity (higher beta values) due to asymmetric information (Reinganum & Smith 1983; Orycaso & Rogers 2004; O'Shea *et al.* 2008; Ozenbas *et al.* 2010). Our sample consists of 41% resource firms (SIC 01-14; GICS 10,15), 17% manufacturing (SIC 15-29; GICS 15, 20), 3% utilities (SIC 49; GICS 50, 55), 5% financial services (SIC 60-69; GICS 40), and 33% 'other' category which includes wholesale, retail, health care and IT firms. In terms of size, average total assets were $259 million and average revenues were $182 million.

Table 4.1 Overview of S&P/ASX Emerging Company sample firms by SEO year

Year	SEO Count	Industry					Total Assets $ Mil	Revenue $ Mil	Market Capitalisation $ Mil
		Resource	Manufacturing	Utility	Finance	Other			
2008	2	1				1	482.95	241.55	244.57
2009	4	2	2				441.80	451.38	91.64
2010	5	3				2	15.51	5.91	27.91
2011	8	3	4			1	230.42	193.20	283.96
2012	14	6	1	1	1	5	373.87	302.31	587.02
2013	23	9	4	1	2	7	241.35	153.40	210.47
2014	7	2				5	188.70	113.12	168.63
Count	63	26	11	2	3	21			
Mean							258.65	181.56	260.27

Between 1 July 2010 to 30 June 2014, there were one-hundred fifty-eight SEOs issued by our sample firm. The 30 June 2014 cut-off date provided the study with a minimum of three years (t + 3 years) to measure post-SEO issue performance. This allowed access to an annual report measuring three years post-SEO (t + 3 years) performance up to the end of the Australian financial year 30 June 2017; where a firm had issued more than one SEO during the sample period, we chose the most recent SEO which resulted in a sample size of sixty-three firms. We include all three public offering classes of SEO: Rights Issues, Share Purchase Plans, and Dividend Reinvestment Plans. We excluded placements unless they were a hybrid instrument wherein investors were also publicly solicited on the open market. The excluded private placements involved covertly placing large blocks of shares (usually 5% or more of the companies authorised capital) by direct negotiation with institutions or sophisticated investors. We agree with the literature's contention that institutional funds possess greater analytical capabilities that may inure them against information asymmetry adversely affecting a private placement (Abiden *et al.* 2012; Wang 2012; Liang & Jang 2017).

4.5.2 Methodology

We obtained both empirical and descriptive data from the firms' annual and half-yearly reports, official exchange announcements, and a range of business media. Web-enabled sourcing streams, including Bloomberg, Capital IQ, and Factiva, were employed.

4.5.3 Dependent variables

We assume that investment would be made after receiving a prospectus or presentation detailing the terms of the SEO. Thus, rather than rely on the SEO announcement or filing dates provided by commercial databases, we sifted through each firm's ASX announcements to determine the earliest date that full information about the SEO and its pricing was made available to shareholders. The chosen announcements were prefaced with words such as Non-Renounceable Rights Issue Prospectus, Retail Entitlement Offer Booklet, Share Purchase Plan Offer Documents, Offer Statement, Capital Raising Presentation, or simply Prospectus.

The earliest date that full information was available for the SEO is defined as the SEO date 't.' We measure financial performance for two post-SEO periods: Short Term: one year from SEO date (t + 1) and Long Term: three years from SEO date (t + 3) and via two metrics: accounting performance and market performance. Accounting performance is defined as return on assets (ROA) measured by earnings before interest, taxes, depreciation, and amortisation (EBITDA)/Total Assets (Clarke *et al.* 2004; Pojezney 2007). Short-term ROA is measured at the end of the fiscal year following the SEO date (t + 1), and long-term ROA is measured at the end of three fiscal years following the SEO date (t + 3).

Market performance is defined as ARs benchmarked against the S&P/ASX XEC. The short and long-term AR assume a simple 'buy and hold' strategy (Sahin 2005).

Due to the issues in estimating the market model for small-cap stocks, we calculate simple market adjusted return following Brown and Warner (1980) as follows:

$$R_{(t+x)} = ((P_{(t+x)} - P_t)/P_t) - ((I_{(t+x)} - I_t)/I_t) \quad [1]$$

Where $R_{(t+x)}$ *= rate of return for period (t + x)*
$P_{(t+x)}$ *= equity price at period (t + x) adjusted for dividends*
P_o *=equity price at the SEO offer date*
$I_{(t+x)}$ *= the XEC value at (t + x)*
I_t *= the XEC value at the SEO offer date*
t = the offer date.

X = the end of a period from the offer date measured in years.

We obtained share prices, adjusting for dividends and splits, and prices for the S&P/ASX ECI index (small-cap XEC) from Bloomberg.

4.5.4 Independent variables

Neither the parameters of asymmetric information nor the dimensions of the nominated organisational core competencies are directly observable. Any broad observation-based assessment of organisational competencies is likely to be rife with resolute ambiguities that can frustrate efforts to identify causal links with financial performance (March & Sutton 1997). Core competencies can only be measured by proxied correlations with historic outcomes (Abosede & Oseni 2011), such as the AR and ROAs adopted by this study.

We developed a series of fifty-four explanatory proxies spread over five core competency groups. We were guided by the prior work of Priem *et al.* (1999), Reber and Fong (2006), and Abosede and Oseni (2011). The robustness criteria advocated by Priem *et al.* (1999) was observed in the selection of all fifty-four proxy constructs. The criteria called for:

1) Construct validity over measurement reliability.

2) Explanation rather than prediction.

3) Prescription over prediction.

Our ability to develop proxies for the five designated core competency groups depicted in Figure 4.2 was limited by the probability that some proxies may be both firm and market specific (Reber & Fong 2006; Abosede & Oseni 2011). Some proxies may also reflect more than one of the designated core competencies while still showing a strong correlation with the selected dependent variable.

We coded the five groups of core competencies depicted in Figure 4.2 as follows:

1. The ability to optimise market performance from a given quantum of financial resources (*Resource Max:* **RM**)
2. The quality of governance (*Strong Governance:* **SG**)
3. Industry-specific technological qualifications and experience (*Explicit Industry Knowledge:* **EIK**)
4. The ability to detect and quickly adapt to customer changing needs *(Adaptability to Change:* **ADP)**
5. The ability to innovate to competitive advantage (*Innovation:* **INN**)

We defined, coded, and allocated the fifty-four proxies (cross-reference Table 4.2) across the five core competencies as follows:

Resource Maximisation (RM)

All financial data, unless otherwise stated, are obtained from the latest annual, half-yearly or quarterly report issued during the period (t - 1 year). The reports were either accessed directly from ASX archives or, where stated, some specific data was obtained from Bloomberg and Capital IQ archives.

1. **CCC** is the cash conversion cycle (CCC). Bolek (2014) demonstrate that the cash conversion cycle is a significant marker of resource maximisation, and is linked to working capital and the required rate of return. We measured it as follows:

CCC = Days AR + Days Inventory – Days AP

Decades earlier, Ou and Penman (1989) used a logistic regression model to demonstrate that days in accounts receivable is a direct predictor of common stock returns.

2. **LTE** is the ratio of long-term borrowings to market value of equity. Bhandari (1988) reports a firm's debt/ equity ratio was positively related to expected returns on common stock (see also proxy **DE**). The long-term debt to equity ratio is the most significant (p = 0.861) of Ou and Penman (1989) sixty-eight predictors of stock returns.

3. **GM** is the gross profit margin calculated by deducting the Cost of Goods Sold (COGS) from total sales revenue. Note that we have a number of resources companies in our Index, and this measure does have a positive linear correlation with financial performance for the typical US resource firms which tend to be price takers (Cairns 2001). However, in Australia, with a predominance of resource firms, this is the case. Due to vigorous price, competition firms such as Fortescue Metals have gained significant market share against larger companies such as Rio and BHP. This ratio measures the competence of the company to generate a mark-up on its product or service in the face of competition (Hitchner 2011).

4. **RFA** is the ratio of fixed assets to total equity (property, plant and equipment). This ratio is a statistically significant predictor of financial performance (Ou & Penman 1989).

5. **SFA** is the ratio of sales revenue to fixed assets. This ratio is one of the six ratios that Ou and Penman (1989) hold as statistically significant predictors of stock returns.

6. **STA** is the ratio of short-term borrowings to total assets (excluding-intangibles). Dananti *et al.* (2017) showed that this liquidity ratio is a significant predictor of, but inversely related to, financial performance.

7. **LTTA** is the ratio of long-term borrowings to total assets excluding-intangibles. As with **STA**, Dananti *et al.* (2017) report that this measure of resource maximisation is a strong predictor of financial performance.

8. **DIS** is 'the price discount measured as the relative difference between the offer price and the last close price before the offer announcement' (Asem *et al.* 2010). Chemmanur *et al.* (2010) conclude that the SEOs of higher-quality firms, who manage their resources more efficiently, will have smaller spreads and thus offer smaller discounts.

9. **MSEO** is the number of SEOs issued over (t - 3 years). DeAngelo *et al.* (2007) find that the timing and number of SEOs are primarily determined by the issuers near-term liquidity needs. The data was obtained from Bloomberg, Capital IQ, and ASX archives. A sequence of prior SEOs infers cycles of urgent near-term illiquidity, a marker of an inability to manage financial resources.

10. **ALC** equals the percentage of SEO proceeds to be invested in a new project(s), as stated in the SEO announcement. Bayless and Jay (2013) argue that treating SEO proceeds as cash reserves is a non-productive use of funds. Agrawal *et al.* (2010) found that the market reaction to Australian SEOs issued to raise funds for capital expenditure was significantly more positive than those structured for other purposes.

11. **QR** is the quick ratio defined as cash and equivalents + marketable securities + accounts receivable)/current liabilities. The data was obtained from Capital IQ archives. Gallinger (1997) considers the quick ratio a more rigorous test of a firm's liquidity, as it omits both inventory and prepaid expenses. A low quick ratio may indicate that a firm lacks sufficient funds to meet its short-term financial obligation.

12. **DE** is the total interest bearing debt (including contingent leasing liabilities) to shareholders' equity ratio. Dalal (2013) reports that debt/equity levels above 0.25 are statistically significant predictors of increased market value.

13. **NM** is the ratio of Earnings before Interest and Tax (EBIT) to gross operating revenue. Kim *et al.* (2009) show that a firm's stock prices are highly sensitive to the firm's profit margins. They find that the regression co-efficient of their sample's sales margin (2.54) was up to nineteen times higher than the earnings response co-efficient for the same industry.

14. **WAAC** is the weighted average cost of capital. We extracted each firm's WACC from Bloomberg's archival data. Bloomberg calculate a firm's beta co-efficient by regression analysis before using a proprietary adjustment to 'move' each particular firm's Beta toward the market, i.e., towards a value of 1.

    A firm's WAAC is the touchstone performance predicting financial ratio and is especially suited to measuring top management's performance, as the second part of the WAAC formula indicates the required return to shareholders (Hyung-Il 2008; Bozec & Bozec 2010).

15. **TO** is the rate of inventory turnover which is a direct measure of working capital efficiency (Padachi 2006). Mateev and Anastasov (2010) argue that the faster a firm converts its non-cash assets (e.g., inventory) to cash assets, the stronger its growth prospects.

16. **CFA** is the cash flow to assets ratio. It is a modified measure of the firm's ability to maximise the ROA in the sense that the ratio is pre-tax and accommodates certain add-backs. We calculated free cash flow by taking the firm's earnings before interest and taxes and multiplied by (1 − tax rate). We then added depreciation and amortisation before subtracting changes in working capital and capital expenditure.

    In a contemporaneous study, McLaughlin *et al.* (1996) found that that 1,296 SEO firms listed on the NYSE experienced 'significant post issue declines in cash flow performance scaled to book assets in both unadjusted and industry adjusted comparisons.' Loughran and Ritter (1995) report similar findings.

17. **BMR** is the book-to-market value (BMR). The book value is the accounting value of the firm's tangible assets and taken from the latest annual in the report (to 30 June) in the period (t - 1 year). Market value is the firm's market capitalisation at the date of SEO offer and is the product of the number of outstanding shares and the equity market price on that date. Fama and French (1992) show a strong positive relationship between average returns and a firm's BMR. Exploring emerging companies, Rouwenhorst (1999) finds that 'high book-to-market stocks have outperformed low book-to-market stocks in 16 out of 20 countries.' Australia was not included in Rouwenhorst's study.

    An inversion of the BMR, the Price/Book ratio has also been used as a proxy for predicting the firm's growth (O'Brien 2003; Nezlobin *et al.* 2016). Nezlobin *et al.* (2016) observe that textbooks frequently 'view a P/B ratio equal to 1 as normal,' but argue that anticipated growth and profitability can push this ratio higher. Nezlobin *et al.* (2016) differentiate between the effects of past and future growth on the P/B ratio, holding that *ceteris paribus* the prospect of higher future growth is reflected in a higher P/B.

18. **EPS** is Earnings Per Share at the SEO date. The data was extracted from the Bloomberg archives. Thompson (1998) holds that EPS was a valid measure of the effect of organisational core competence on the financial performance of the business. EPS is a facet of agency theory that interprets the direct effect of corporate earnings on individual shareholder's interests. There is a positive and significant relationship between EPS and AR (Gao 2000; Mehri Akhavi 2015).

Nichols and Wahlen (2004) see an investor's desire to achieve high AR as 'part of the explanation for why so many investors and analysts devote so much time and energy to predicting earnings.'

19. **CTP** is the free cash flow to market price ratio as calculated from the last annual report prior to the SEO offer date. Haugen and Baker (1996) find that the cash flow to price ratio is the most second most powerful determinant of stock returns in a sample of 3,000 US listed firms.

20. **SAL** is the CEO's compensation, including base salary and cash bonuses, but excluding superannuation, fringe benefits, stock grants, and the value of any stock options. Lilling (2006) found a positive relationship between a CEO's compensation and the market value of a firm, reporting that 'the market value of a firm's relationship with a CEO's compensation is stronger than previously estimated.' Appearing to partially counter Lilling (2006) findings, after controlling for firm size, Nourayi and Mintz (2008) found that both market and accounting-based performance measures are negatively correlated with long-serving CEOs' total compensation package, regardless of length of experience.

Strong Governance (SG)

21. **SEPRL** is an indicator variable that equals 1 where is a separation of the role of CEO and Chairman at the SEO announcement, and 0 otherwise. Both the literature and industry have long held that, in the interests of mitigating the adverse effects of agency theory, the position of chairman and CEO should be held by different persons (Bosch 1995; Kiel & Nicholson 2003; ASX 2015).

22. **CIN** is an indicator variable that equals 1 where the chairman was a non-executive director at the time of the SEO announcement, and 0 otherwise. Various Exchange sponsored governance codes, e.g., the King report on Governance for South Africa (King 2010) and the UK Corporate Governance Code (FRC 2016), recommended that the chairperson be a non-executive director. The primary reason is to reduce agency influence (Mulgrew *et al.* 2014). Jackson *et al.* (2008) found that firms with a non-

executive, chairman-controlled CEO compensation better and were at a lower risk of informed trading.

23. **IND** is the percentage of non-executive directors on the board at the time of the SEO announcement. The ASX Principles of Good Corporate Governance and Best Practice Recommendations (ASX 2015) require that Australian-listed companies who do not have a majority of independent directors on their board provide cogent reasons for this shortcoming. Referring to IPOs as distinct from SEOs, Liao *et al.* (2011) suggest that there was a positive post listing linkage between the percentage of non-executive directors on the board and a firm's post-SEO performance. Referring to SEOs, Huang and Tompkins (2010) find that the market believes there is less likelihood that management will misuse the proceeds of an issue if there is a preponderance of independent directors on the board.

24. **PRU** is the existence of a pre-SEO announcement stock price run-up. We measure it as the per cent change in price over the three months preceding the announcement. He et al. (2010) found that many SEO issuers manipulate their earnings at 'around the time of the issuance,' which is reflected in a 'a stock price that is temporarily overvalued.' An unexplained run-up in equity prices pre-SEO announcement may suggest earnings management (Rangan 1998; Teoh et al. 1998; Wen-Ben et al. 2013). However, in their SEO event study, Huang, Uchida and Zha Huang et al. (2015) find pre-SEO price run-up also to be consistent with investor sentiment. Another explanation could be related to insiders trading as with pre-takeover price run-ups.

25. **PE** is the absolute number of 'please explain' requests (n) from the ASX relating to lack of disclosure explaining aberrant trading patterns during the period (t - 1 year). The data was obtained from the firm's announcements to the ASX. This is a direct measure of potential breaches of continuous disclosure, a basic tenet of governance. Jackson *et al.* (2008) demonstrate a positive link between poor disclosure practices and stock price volatility.

26. **OWN** is the percentage of the company's market equity actually owned by directors as distinct from the incentive of their stock options. The data was taken from the Director Compensation table in the annual report immediately preceding (t). Pergola and

Joseph (2011) show that if the percentage of directors' owned equity falls in the range of 30-50%, it directly correlates with adverse agency influence and weak governance.

27. **CSR** We measured the firm's Corporate Social Responsibility (CSR) as an indicator variable that equals 1 in cases where the firm issues a CSR audit, and a 0 otherwise. An early study by Cochran and Wood (1984) found only a weak correlation between Corporate Social Responsibility (CSR) and financial performance. However, a more recent study by Lee (2014) argues that CSR is not only an integral part of strong governance, but positively contributes to corporate financial performance.

28. **OPT** represents the number of options held by the CEO as a percentage of his/her monetary compensation package. The literature (Meek *et al.* 2007; Sawers *et al.* 2011) accepts stock options as an element of pay-for-performance compensation. Gong (2011) finds that applying a higher pay-for-performance sensitivity to CEO compensation is associated with higher realised pay and higher abnormal stock returns. However, Kanagaretnam *et al.* (2009) show that stock options granted to CEOs of stagnant firms may precipitate risky behaviour that breaches good governance.

    CEO stock options are therefore an ambiguous proxy, in that their execution negatively correlates with good governance but positively correlates with financial performance.

Explicit Industry Knowledge (EIK)

29. **EDU** is the total number of tertiary degrees held by board members. We obtained the data from the last annual report for the period (t - 1 year). We score an indicator variable that equals 1 per degree or a 0 otherwise. Darmadi (2013) reports that the educational qualifications of board members can affect ROA and contribute to explaining Tobin's Q.

30. **EXP** is the number of years of industry-specific experience accumulated by the non-executive members of the Board. We obtained this data from resumes contained in last annual report prior to (t). We posit that Boards with a majority of non-executive members with little related industry experience are more likely to approve technological investments and strategies without a proper understanding of the risks

involved. Lai *et al.* (2014) find that the quantum of a director's industry related outside experience is positively related to increased revenue emanating from strategic decisions. Le *et al.* (2012) report that non-executive board members with industry-specific experience have a positive impact on the quality of industry-specific human capital in the TMT, and thus influence financial performance.

Clements *et al.* (2015) also confirm that a significant positive relationship exists between a director's related industry experience and corporate governance effectiveness. Importantly for this study, they found that the quantum of a director's industry related experience was likely to have the greatest impact on small rather than large companies' performance.

31. **EDUC** is an indicator variable that equals 1 when the CEO holds a university degree at the time of the SEO announcement, and 0 otherwise. Arthur *et al.* (2012) observe that education is not the most frequently cited determinant of entrepreneurial success, but that it does rate highly in comparison to others. Pascal *et al.* (2017) conducted an empirical study that showed that CEOs who had a business education performed significantly better financially than those who did not. King *et al.* (2016) examined the value of an industry-specific tertiary education on a CEO's performance, concluding that there is an 'emerging consensus in the literature that the education of the CEO is a factor in explaining performance differentials.'

32. **EDUR** is an indicator variable that equals one for each university degree the CEO holds that is technically related to their firm's industry. For an unrelated degree, or no degree, the score is zero. This measure differentiates between a generalist degree (e.g., an MBA) and a specialist degree (e.g., a Batchelor of Geology or Science in a Resource firm). The literature (Baruch *et al.* 2005; Datta & Iskendar-Datta 2014) suggests that an MBA is more financially rewarding to its holder, and CEOs with generalist degrees are more sought after than those with specialist degrees. However, in terms of performance, an earlier Canadian business media report (Keller 1999) found that specialist degrees such as engineering, rather than MBAs, are the hallmark of CEOs of highly successful listed Canadian companies.

33. **CEO** is the number of years of the CEO's industry-specific experience. The data was obtained from directors resumes published in the firm's latest annual report in the period (t - 1 year). The depth of a CEO's industry-specific experience is positively related to a firm's performance (Stone & Tudor 2005; Rodenbach & Brettel 2012; King *et al.* 2016). Stone and Tudor (2005) carried out an in-depth survey of the CEOs of fifty-eight publicly traded US corporations and report that the 'level' and 'intensity' of a CEO's specific industry experience at executive level may significantly impact financial performance. Stone and Tudor (2005) conclude that generic management experience does not appear to positively impact ROA.

34. **SERV** is the CEO's tenure with the firm measured in years. The data was obtained from directors' resumes published in the firm's latest annual report in the period (t - 1 year). This proxy assumes that familiarity with a specific firm asset enhances a CEO's ability to generate AR for that firm. However, extended tenure also has implications of excessive compensation and 'staleness,' leading to poor strategic decisions (Miller 1991; Nourayi & Mintz 2008). As far as we could ascertain, this proxy had not been previously tested against AR in an Australian study.

35. **IL** was measured by a Factiva search of the Australian Financial Review, the Australian and Sydney Morning Herald, and other credible business media for the number of times 'industry leader,' 'leading company,' or 'leading firm' appeared in references to each firm.

    Williams and Sun (2015) found that industry leaders 'are more likely to beat analyst's expectations than non-industry leaders.'

36. **TRN** is the expenditure as a percentage of revenue on formal training programs for employees. It was measured as an indicator variable that equals 1 in cases where the firm conducts such programs e.g., apprenticeships, and 0 otherwise. The data was obtained from the firm's latest annual report in the period (t - 1 year).

    Extant literature linking training to SME performance is sparse and ambiguous. Cosh *et al.* (1998) find that training 'in aggregate is significantly and positively associated with higher sales growth,' but did not specify the type or duration of training. Jayawarna *et al.* (2007) stated that to be effective, training in an SME environment needs to be

formal and targeted to industry-specific needs. Jayawarna *et al.* (2007) found that generic training is unlikely to provide significant performance benefits.

Patton *et al.* (2000) described formal job-specific training as 'initiatives which can be identified by both recipients and deliverers as an intervention which has a structured mode of delivery, where the aim is to impart new awareness or knowledge of a workplace process or activity.' Patton *et al.* (2000) found little empirical evidence to support the intuitive perception that an investment in job-specific training will enhance SME performance.

However, linking training to SME e-commerce, Eikebrokk and Olsen (2009) found a positive relationship between training, competence, and business performance. They conclude that the quantum of training explains 'variances in e-business competencies and performance in terms of efficiency and novelty.' Their findings align with Cosh *et al.* (1998)'s earlier study.

This study's attempt to link expenditure on industry related training with Australian AR breaks new ground.

37. **INST** is the total number of recognised industry-specific institutions that each board member is a Fellow of. The data was obtained from the firm's latest annual report in the period (t - 1 year). Granting the status of Fellow in a recognised industry institution implies screening for a high level of industry expertise and training. This intuitive proxy has no known literature support, but anecdotally is widely accepted as a marker of industry-specific expertise.

Adaptability to Change (ADP)

38. **RG3** is the revenue growth for the period (t - 36). The revenue growth was obtained from Capital IQ archives. This proxy assumes that unpredictable exogenous changes and pressures put a given market in a continuous state of flux, requiring constant adaptations to maintain revenue growth. Thornhill (2006) found that in volatile environments, innovative firms 'are likely to enjoy revenue growth, irrespective of the industry in which they operate.'

39. **CHN** is measured by the number of previous times the firm's CEO at time (t) had previously been a CEO or equivalent of a listed company. We acknowledge that if the changes were bought about by dismissal, an inverse relationship would exist, thus such changes were excluded from our data. The data was acquired from the latest annual report in (t - 1 year). Berger *et al.* (2001) and Elsaid (2015) showed that a CEO's experience can influence their dynamic capabilities.

40. **REP,** the firm's reputation**,** was measured by a Factiva search of the Australian Financial Review, the Australian and Sydney Morning Herald prior to time (t) for the reputational context in which the company's name was mentioned, if at all. The published reputation was measured on a similar scale to that adopted by Cianci and Kaplan (2010). The measurements were 'Unfavourable (Score -1), 'N/A' (Score 0), 'Neither favourable or unfavourable' (Score 1), 'Favourable' (Score 2). Earlier studies suggested a strong relationship between a firm's reputation and its future financial performance (Roberts & Dowling 2002; Eberl & Schwaiger 2005). Schürmann (2006) demonstrated that reputation may not be persistent. A more recent study by Wang and Berens (2015) finds that amongst large corporations, a positive ethical and economic public reputation contributes to superior corporate financial performance. Two more recent studies (Turyakira *et al.* 2012; Maldonado-Guzmán *et al.* 2017) found that a significant positive relationship between an SME's reputation is its financial performance.

41. **REPC** is a measure of the CEO's reputation. We employed a Factiva search of the national, capital city, and regional business publications prior to time (t) for the reputational context in which the CEO was associated with the firm or their preceding role. The measurements were 'Unfavourable (Score -1), 'N/A' (Score 0), 'Neither favourable or unfavourable' (Score 1), 'Favourable' (Score 2). Cianci and Kaplan (2010) demonstrate that 'judgements about the company's future performance and management's reputation are consequential, in that they are associated with investment decisions.' More recently, Fetscherin (2015) found that a CEO's reputation 'heralds company performance expectations to the market and specifically to shareholders.'

42. **LDR** is transformational leadership measured as the CEO's ability to imbue his organisation with an entrepreneurial culture of adaptive pre-eminence that delivers profitable innovation in the face of adversity (Papalexandris & Galanaki 2008; Seah *et al.* 2014). This proxy is corporately internalised to actually deliver financial performance, rather just than the intangible expectations that stem from a favourable exogenous reputation. We employed a Factiva search of the financial media over the period (t - 3 years) to assess the CEO's transformational leadership ability by interpreting the context in which the words 'leader' or 'leadership' or similar were associated with their name. The measurements were 'Unfavourable (Score -1), 'N/A' (Score 0), 'Neither favourable or unfavourable' (Score 1), 'Favourable' (Score 2).

    Chen (2009) contends that the transmission mechanism of entrepreneurship lies in 'understanding its integration effect in a dynamic environment.' Chen (2009) is saying that a CEO's financial or marketing entrepreneurship is leveraged by the ability to imbue it into the entire organisation.

43. **VAL** is the value of acquisitions made in period (t - 3 years) expressed as a % of total assets taken from the last annual report for the period (t - 1 year). The information is obtained from Annual Reports and ASX disclosure announcements for the period (t - 3 years). Laamanen (1999) perceives acquisitions as a strategy to acquire new technology or enter a new market. We therefore employ a history of acquisitions as a proxy for adaptability, although Lester and Lipinksi (2015) observed that there is a dearth of literature on SMEs acquiring SMEs.

44. **MKT** is the percent of revenue committed to marketing averaged over three years. It was obtained from the three annual reports for period (t - 3 years). A strong, persistent financial commitment to marketing indicates an ability to anticipate and adapt to change (Breznik & Lahovnik 2016).

45. **DIS** is the disposal of legacy or non-core assets over the period (t - 3 years) expressed as a percentage of tangible assets stated in the last Annual Report in the period (t - 1 year). The value of the liquidated assets for the period (t - 3 years) was obtained from Morningstar Data Analysis, Capital IQ, and cash flow statements in the Annual reports. The disposal of obsolete or non-core legacy assets indicates an ability to recognise and adapt to change (Sigalas *et al.* 2013).

46. **GLBL** is the existence of a revenue generating offshore subsidiary or operation as recorded in the latest Annual report for period (t - 1 year). It was measured as an indicator variable that equals 2 in cases where the firm has a profitable foreign operation (s) and 1 otherwise. Al-Mubarak (2016) argues that a substantial adaptive competency is required for a small firm to establish financially successful foreign operations. He observes that the challenges facing small companies going global include coping with 'cultural and social differences, regulations and legal environment and marketing products internationally.'

47. **THN** is the policy to acquire new strategic human capital to meet changing markets and technology. The measure was taken from the careers functionality of the firm's website, investor presentations, and ASX market announcements for the period (t - 3 years). It was measured as an indicator variable that equals 1 in cases where the firm continually seeks new highly qualified human capital, and a 0 if the firm had no clearly defined policy of doing so. Gardner (2002) observed that ambitious 'firms compete aggressively to acquire and retain talent to maintain operations and continue to grow.'

48. **CON** is the policy to hire specialist consultants to obtain the expertise to adapt to changing markets and technology. The measure was taken from the annual reports, investor presentations, and ASX market announcements for the period (t - 3 years). It was measured as an indicator variable that equals 1 in cases where the firm has a policy of hiring consultants for specific tasks and 0 where there was no indication of the existence of such a policy. Calvin (1995) observes that 'consultants are perceived as a tangible way to improve small business performance.' More recently a study by Chen *et al.* (2011) finds 'strong evidence that the adoption of management consultants has a positive effect on firm performance.'

49. **TT** is external technology rights accessed or licensed (as distinct from being endogenously created) in the period (t - 3 years). It was measured as an indicator variable that equals 1 in cases where the firm pays royalties or fees to access intellectual property (IP), and a 0 otherwise. The data was obtained from annual reports, investor presentations, and ASX announcements for the period (t - 3 years). Colombo and Filippini (2016) found that patent licencing plays a crucial role in the dissemination of innovations and technological improvements across firms. This proxy

is a direct measure of a firm's ability to access emerging technology (Adams *et al.* 2006).

50. **IT** is the strategic implementation of IT and digital resource management solutions. It was measured as an indicator variable that equals 1 in cases where the firm utilises or intends to utilise high level CRM or similar resource orientated management software during the period (t - 1 year), and a 0 otherwise. Definitive data for the period (t - 1 year) was obtained through annual reports, the firm's investor relations department, and investor presentations. Mazzarol (2015) posits that digital technology offers small and medium-sized companies the opportunity to adopt the automated strategies that were previously the preserve of larger companies. The adoption of digital technologies induces a competitive advantage (Bilgihan & Wang 2016), and is therefore a meaningful proxy for the competency of adaptation to change.

51. **DIV** is the extent of diversification of the firm's products or services. Coad and Guenther (2013) define 'major' diversification as 'expanding the product portfolio into new submarkets.' We measured it as an indicator variable that equals 1 in cases where the firm products or services were marketed to clearly delineated submarkets during the period (t - 1 year), and a 0 otherwise. The data was obtained by reviewing the subject's pre-SEO revenue statements, investor presentations, and website. Successful diversification demands an adaptive TMT and hence is a proxy for a firm's adaptive ability. A body of literature links the longitudinal effects of a diversification strategy to enhanced financial performance (Palich *et al.* 2000; Bausch & Pils 2009; Benito-Osorio *et al.* 2012). Using a curvilinearity model, Palich *et al.* (2000) reported 'performance increases as firms shift from single-business strategies to related diversification.'

52. **CUS** is the influence of customer satisfaction on refining existing or creating new products or services designed to lift financial performance. A relatively new concept of this factor is termed 'product fluidity,' a measure that captures changes made to rival products in response to market (customer) demand (Hoberg *et al.* 2014).

52) We measured it as an indicator variable that equals 1 in cases where there was a formal structure in place to solicit customer feed-back during the period (t - 1 year), and a 0 otherwise. We inspected the firm's website for evidence of formal customer feed-back channels and sought confirmation of the influence of customer satisfaction

on product development from social media, investor presentations, and executive postings in the latest annual report for the period (t - 1 year).

LoPreiato (2016) correlates customer satisfaction scores with the financial performance measures of technology companies and finds a positive relationship. In a study of Australian SMEs, Gadenne and Sharma (2009) concluded that 'customer involvement appears to be important in maintaining a competitive edge in terms of a return on assets.' Ogawa and Piller (2006) demonstrated a financial risk mitigating product development model that is heavily reliant on customer feedback.

Innovation (INN)

53) **PAT** is the number of patents or copyrights lodged or granted during the period (t - 36). This information was obtained from investor presentations, annual reports and IP Australia for the period. A series of case studies by Chen and Wu (2007) suggested that an R&D capability is not only a source of innovation but is 'regarded as the most important source of core competence both by high-tech firms and traditional manufacturers.' Bhaumik *et al.* (2009) assert that the grant of patents is an empirical measure of the effectiveness of R&D expenditure. Note that the perceived value of a patent may degrade if it is not commercialized within a reasonable time frame, but if it is commercialised, its corporate value will increase (Schürmann 2006; Sichelman 2010).

54) **DRP** is the presence or recognition of a disruptive innovation in the firm's (t - 3 years) strategies to achieve competitive advantage. The data was sourced from the firm's website, investor presentations, and annual reports for the period (t - 3 years). It was measured as an indicator variable that equals 1 in cases where the firm created, adopted, or intended to adopt a disruptive innovation, and a 0 otherwise. Bower and Christensen (1995) defined disruptive innovation as new technologies that can create new markets or radically change, or disrupt, the status quo in existing markets. Schmidt and Druehl (2008) found that when the disruptive innovation is 'one of high-end encroachment, the impact on the current market is immediate and striking.' Nagy *et al.* (2016) suggest that a 'failure to predict disruptive innovation can have inimical consequences for market incumbents.'

Christensen (2015) most recent study suggests that disruptive innovations are more likely to gestate in smaller or newer firms struggling to obtain a foothold in a mature market dominated by large incumbents.

The descriptive statistics for the fifty-four proxies for the five core competency dimensions described above are summarised in Table 4.2. (Please note that this table will also serve as a reference for keeping track of variable names in the results sections.)

Table 4.2 Core competency proxies.

Core Competency Categories	Variable	Code	N	Mean	Std. Deviation
Resource maximisation (RM)	Cash conversion cycle	CCC	63	31.28	252.16
	Ratio of long-term debt to equity	LTE	63	0.14	0.24
	Gross margin ratio	GM	63	2.27	11.45
	Ratio of equity to fixed assets	RFA	63	0.56	0.79
	Ratio of sales to fixed assets	SFA	63	17.14	54.02
	Ratio of short-term debt to total assets	STA	63	0.03	0.05
	Ratio of long-term debt to total assets	LTTA	63	0.08	0.13
	% Discount on shares offered at SEO	DIS	63	0.01	0.04
	No of SEOs ante current SEO	MSEO	63	0.75	0.93
	Allocation of SEO proceeds	ALC	63	0.44	0.41
	Quick ratio	QR	63	3.61	4.23
	Debt/Equity ratio	DE	63	0.26	0.91
	Ratio of EBIT to gross revenue	NM	63	-8.32	27.16
	Weighted Average Cost of Capital	WAAC	63	10.86	4.36
	Inventory turnover	ITO	63	8.32	28.96
	Cash flow to total assets ratio	CFA	63	-0.22	0.67
	Book-to-market ratio	BMR	63	1.28	2.13
	Earnings per Share	EPS	63	-0.15	6.19
	Cashflow to price ratio	CTP	63	-36.33	88.61
	CEO's base salary and bonuses	SAL	63	0.55	0.40
Strong governance (SG)	Separation of role of chairman & CEO	SEPRL	63	0.81	0.50
	Is the chair an independent director	CIN	63	0.81	0.40
	Proportion of independent directors	IND	63	0.70	0.16
	Pre-SEO stock price run-up	PRU	63	-0.01	0.34
	ASX notification of possible infringement	PE	63	0.13	0.38
	Percentage of Firm owned by directors	OWN	63	0.11	0.15
	Corporate Social Responsibility	CSR	63	0.00	0.00
	Number of options held by CEO	OPT	63	1.60	2.89
Explicit Industry knowledge (EIK)	No of degrees held by board	EDU	63	3.19	1.87
	Total of years industry experience at Board	EXP	63	79.08	41.63
	CEO's Tertiary Qualifications	EDUC	63	1.24	0.86
	CEO's Relevant Tertiary Qualifications	EDUR	63	0.79	0.77
	CEO's specific industry experience	CEO	63	18.87	10.18
	CEO's years of service with firm	SERV	63	5.68	6.10
	Recognised leaders in their industry	RL	63	0.62	0.94
	Amount of revenue committed to training	TRN	63	0.21	0.41
	High level membership industry institutions	INST	63	1.13	1.20
Adaptability to change (ADP)	Revenue growth prev 3 years	RG3	63	0.43	1.02
	CEO's churn history	CHN	63	2.13	1.82
	Corporate reputation	REP	63	0.89	1.19
	CEO's Reputation	REPC	63	1.44	0.82
	CEO's transformational leadership	LDR	63	1.13	0.77
	Value of acquisitions or mergers undertaken	VAL	63	0.07	0.23
	% of revenue committed to marketing	MKT	63	0.00	0.01
	Disposal of poorly performing assets	DIL	63	0.00	0.02
	Offshore presence/Export Orientation	GLBL	63	0.60	0.49
	Acquire strategic human capital	THN	63	0.51	0.50
	Hire specialist consultants	CON	63	0.49	0.50
	Technology transfer	TT	63	0.21	0.41
	Strategic implementation of IT	IT	63	0.52	0.53
	Diversification of products	DIV	63	0.30	0.46
	Customer involvement	CUS	63	0.44	0.53
Innovation (INN)	No of patents or copyrights lodged	PAT	63	0.37	0.75
	Creation of a disruptive technology	DRP	63	0.11	0.32
Abnormal Return - Short Term		AR1	63	0.34	1.01
Abnormal Return - Long Term		AR3	63	0.63	1.75
Return on Assets - Short Term		ROA1	63	-0.27	1.07
Return on Assets - Long Term		ROA3	63	-0.14	0.50

4.5.5 Predictive equation construction

H2 holds that if the core competency determinants are significant predictors of financial performance, they can be transformed into an equation capable of classifying the firm as a cherry or a lemon. The cherries are firms predicted to achieve high levels of financial performance, and the lemons vice versa.

Although our study uses both ROA and AR as comparative measures of financial performance, we focus our predictive modelling on market performance. We examine both high versus low short and long-term AR. Contemporary behavioural finance literature suggests that small-cap investors seek AR rather than fundamental value. Prospect theory holds that small-cap investors do not follow the rational analysis protocols and assumptions that utility theory expects of professional fund managers (Park & Sohn 2013). They are more likely to be motivated by high short-run returns, and it is well documented that small-cap stocks can provide AR (Levy & Levy 2011). We produce two predictive models: one predicts short-term AR and one predicts long-term AR. The predictive models objective classifies our sixty-three sample firms as cherries or lemons based on the respective discriminant predictive score.

4.6 Results

4.6.1 Pearson Correlations

We removed proxy CSR from the listed proxies, as none of the firms in our sample undertook a Corporate Social Responsibility audit. Table 4.3 presents correlations between the fifty-three remaining independent variables and the four dependent variables. The dozens of significant correlations among the independent variables suggests the potential for factor analysis for variable reduction. We found twenty-two sets of statistically significant correlations with the dependent variables. AR were significantly and positively correlated with the quick ratio, revenue growth over the three years ex-ante the SEO, the number of patents lodged, and the creation of disruptive technologies.

Table 4.3 Pearson correlation coefficients

		Resource Management (RM)																				Strong Governance (SG)						
		CCC	LTE	GM	RFA	SFA	STA	LTTA	DIS	MSEO	ALC	QR	DE	NM	WACC	ITO	CFA	BMR	EPS	CTP	SAL	SEPRL	CIN	IND	EM	PE	OWN	OPT
RM	CCC	1.00	0.01	-0.19	-0.16	0.15	0.11	0.04	0.02	0.14	0.15	0.04	0.06	0.02	-0.23	-0.01	0.08	-0.07	0.05	0.05	0.02	0.14	0.06	-0.12	0.08	0.06	0.22	-0.06
	LTE	0.01	1.00	-0.05	-0.04	0.24	0.27 *	0.83 **	0.12	0.05	-0.09	-0.34 **	0.25 *	0.19	-0.33 **	0.15	0.20	0.05	0.15	-0.07	0.42 **	-0.08	-0.04	0.27 *	-0.17	-0.04	0.24	-0.12
	GM	-0.19	-0.05	1.00	-0.12	-0.03	0.06	-0.10	-0.06	-0.03	-0.19	-0.11	-0.02	0.04	0.05	-0.05	0.05	0.02	0.01	0.07	-0.15	-0.36 **	-0.36 **	-0.06	-0.24	-0.06	-0.05	-0.03
	RFA	-0.16	-0.04	-0.12	1.00	-0.21	0.06	0.02	-0.16	-0.01	0.06	-0.11	0.13	-0.02	0.09	-0.05	0.14	0.10	0.03	-0.14	0.09	0.08	0.12	-0.16	-0.01	0.28 *	-0.15	-0.13
	SFA	0.15	0.24	-0.03	-0.21	1.00	-0.08	0.25 *	0.04	-0.14	-0.08	-0.07	-0.03	0.09	-0.16	-0.02	0.01	0.08	0.02	0.12	-0.06	-0.18	-0.26 *	-0.04	0.22	-0.10	0.00	0.06
	STA	0.11	0.27 *	0.06	0.06	-0.08	1.00	0.07	-0.13	-0.07	-0.10	-0.30 *	0.21	0.18	-0.34 **	0.16	0.13	-0.03	0.06	0.05	0.05	0.22	0.19	0.13	-0.06	0.07	0.09	-0.17
	LTTA	0.04	0.83 **	-0.10	0.02	0.25 *	0.07	1.00	0.16	0.05	-0.02	-0.30 *	0.24	0.19	-0.32 *	0.13	0.18	0.07	0.26 *	0.00	0.27 *	-0.03	0.00	0.18	-0.06	-0.11	0.33 **	-0.13
	DIS	0.02	0.12	-0.06	-0.16	0.04	-0.13	0.16	1.00	0.08	0.24	-0.14	0.09	0.08	0.05	0.05	0.04	0.60 **	-0.01	0.13	0.09	0.13	-0.11	0.11	0.19	-0.07	0.14	0.35 **
	MSEO	0.14	0.05	-0.03	-0.01	-0.14	-0.07	0.05	0.08	1.00	0.17	-0.03	0.12	0.07	0.13	-0.20	0.03	-0.02	-0.09	-0.18	-0.18	-0.17	-0.13	0.05	0.03	0.00	-0.01	0.26 *
	ALC	0.15	-0.09	-0.19	0.06	-0.08	-0.10	-0.02	0.24	0.17	1.00	0.05	-0.03	0.08	0.05	0.13	0.03	0.08	0.09	0.06	0.06	-0.05	-0.06	-0.12	0.23	-0.07	-0.01	0.18
	QR	0.04	-0.35 **	-0.11	-0.11	-0.07	-0.30 *	-0.30 *	-0.14	-0.03	0.05	1.00	-0.13	-0.16	0.08	-0.08	0.01	-0.19	-0.02	-0.01	-0.12	0.09	0.10	-0.25	0.37 **	0.16	-0.17	0.06
	DE	0.06	0.25 *	-0.02	0.13	-0.03	0.21	0.24	0.09	0.12	-0.03	-0.13	1.00	0.05	-0.21	0.07	0.86 **	0.15	-0.05	0.09	0.13	-0.03	-0.02	0.08	-0.04	-0.03	0.04	0.01
	NM	0.02	0.19	0.04	-0.02	0.09	0.18	0.19	0.08	0.07	0.08	-0.16	0.05	1.00	0.11	0.09	0.02	0.12	0.02	-0.03	0.10	0.03	-0.05	0.13	-0.12	-0.09	-0.03	0.04
	WACC	-0.23	-0.33 **	0.05	0.09	-0.16	-0.34 **	-0.32 *	0.05	0.13	0.05	0.08	-0.21	0.11	1.00	-0.08	-0.21	0.04	-0.09	-0.07	-0.03	-0.09	-0.13	-0.09	-0.05	-0.01	-0.05	0.16
	ITO	-0.01	0.15	-0.05	-0.05	-0.02	0.16	0.13	0.05	-0.20	0.13	-0.08	0.07	0.09	-0.08	1.00	0.08	-0.05	0.02	0.04	0.15	0.09	0.12	0.15	-0.05	-0.08	0.04	-0.04
	CFA	0.08	0.20	0.05	0.14	0.01	0.13	0.18	0.04	0.03	0.03	0.01	0.86 **	0.02	-0.21	0.08	1.00	0.09	0.08	0.19	0.18	-0.11	-0.09	-0.05	0.06	0.03	0.05	-0.01
	BMR	-0.07	0.05	0.02	0.10	0.08	-0.03	0.07	0.60 **	-0.02	0.08	-0.19	0.15	0.12	0.04	-0.05	0.09	1.00	-0.02	-0.06	0.07	0.05	-0.17	0.06	0.17	-0.12	-0.07	0.38 **
	EPS	0.05	0.15	0.01	0.03	0.02	0.06	0.26 *	-0.01	-0.09	0.09	-0.02	-0.05	0.02	-0.09	0.02	0.08	-0.02	1.00	-0.02	0.09	0.16	0.21	-0.01	0.13	-0.01	0.39 **	0.06
	CTP	0.05	-0.07	0.07	-0.14	0.12	0.05	0.00	0.13	-0.18	0.06	-0.01	0.09	-0.03	-0.07	0.04	0.19	-0.06	-0.02	1.00	-0.30 *	-0.03	0.02	-0.11	0.26 *	0.02	0.17	-0.10
	SAL	0.02	0.42 **	-0.15	0.09	-0.06	0.05	0.27 *	0.09	-0.18	0.06	-0.12	0.13	0.10	-0.03	0.15	0.18	0.07	0.09	-0.30 *	1.00	0.06	0.17	0.19	-0.15	-0.01	-0.14	-0.20
SG	SEPRL	0.14	-0.08	-0.36 **	0.08	-0.18	0.22	-0.03	0.13	-0.17	-0.05	0.09	-0.03	0.03	-0.09	0.09	-0.11	0.05	0.16	-0.03	0.06	1.00	0.79 **	0.18	-0.06	0.13	0.20	-0.04
	CIN	0.06	-0.04	-0.36 **	0.12	-0.26 *	0.19	0.00	-0.11	-0.13	-0.06	0.10	-0.02	-0.05	-0.13	0.12	-0.09	-0.17	0.21	0.02	0.17	0.79 **	1.00	0.22	0.00	0.16	0.15	-0.19
	IND	-0.12	0.27 *	-0.06	-0.16	-0.04	0.13	0.18	0.11	0.05	-0.12	-0.25	0.08	0.13	-0.09	0.15	-0.05	0.06	-0.01	-0.11	0.19	0.18	0.22	1.00	-0.21	-0.10	-0.12	-0.11
	EM	0.08	-0.17	-0.24	-0.01	0.22	-0.06	-0.06	0.19	0.03	0.23	0.36 **	-0.04	-0.12	-0.05	-0.05	0.06	0.17	0.13	0.26 *	-0.15	-0.06	0.00	-0.21	1.00	0.06	-0.03	0.01
	PE	0.06	-0.04	-0.06	0.28 *	-0.10	0.07	-0.11	-0.07	0.00	-0.07	0.16	-0.03	-0.09	-0.01	-0.08	0.03	-0.12	-0.01	0.02	-0.01	0.13	0.16	-0.10	0.06	1.00	-0.12	0.12
	OWN	0.22	0.24	-0.05	-0.15	0.00	0.09	0.33 **	0.14	-0.01	-0.01	-0.17	0.04	-0.03	-0.05	0.04	0.05	-0.07	0.39 **	0.17	-0.14	0.20	0.15	-0.12	-0.03	-0.12	1.00	-0.06
	OPT	-0.06	-0.12	-0.03	-0.13	0.06	-0.17	-0.13	0.35 **	0.26 *	0.18	0.06	0.01	0.04	0.16	-0.04	-0.01	0.38 **	0.06	-0.10	-0.20	-0.04	-0.19	-0.11	0.01	0.12	-0.06	1.00

Table 4.3 Continued

		Resource Management (RM)																				Strong Governance (SG)						
		CCC	LTE	GM	RFA	SFA	STA	LTTA	DIS	MSEO	ALC	QR	DE	NM	WACC	ITO	CFA	BMR	EPS	CTP	SAL	SEPRL	CIN	IND	EM	PE	OWN	OPT
EIK	EDU	-0.01	0.06	0.27 *	0.02	-0.04	-0.16	0.13	0.18	-0.05	-0.21	-0.06	0.02	-0.05	-0.03	0.20	0.09	0.13	0.06	-0.21	0.25 *	0.04	-0.06	0.11	-0.04	-0.03	-0.11	0.06
	EXP	-0.15	0.28 *	0.02	0.07	-0.08	0.08	0.15	0.03	-0.12	-0.16	-0.30 *	0.13	0.04	0.13	0.22	0.12	-0.01	0.18	-0.19	0.28 *	0.08	0.08	0.18	-0.27 *	0.28 *	0.19	0.04
	EDUC	0.06	-0.04	0.03	-0.07	0.03	0.08	-0.05	-0.12	-0.08	-0.05	0.03	-0.25 *	0.12	-0.03	0.23	-0.29 *	-0.27 *	0.08	-0.09	0.07	0.18	0.18	0.26 *	-0.08	0.00	0.04	-0.23
	EDUR	0.11	0.07	-0.18	-0.06	0.03	0.24	0.11	0.05	-0.05	-0.11	-0.16	0.02	-0.03	-0.15	0.37 **	-0.07	-0.17	0.08	0.04	0.27 *	0.27 *	0.40 **	0.31 *	-0.12	0.09	0.09	-0.12
	CEO	-0.10	0.19	0.03	-0.07	0.13	-0.11	0.15	-0.04	-0.20	0.03	-0.10	-0.13	-0.07	0.20	0.02	-0.07	0.12	0.11	-0.11	0.35 **	-0.03	0.04	-0.04	-0.19	0.11	0.11	0.02
	SERV	0.14	0.09	0.06	-0.10	-0.04	.379 **	0.12	0.04	-0.14	0.20	-0.16	-0.03	0.16	-0.14	0.25	0.03	0.12	0.08	-0.05	0.24	0.06	0.15	-0.03	0.07	-0.11	.257 *	-0.10
	IL	0.18	0.18	-0.03	-0.33 **	0.37 **	0.05	0.16	0.05	-0.17	-0.01	-0.12	-0.30 *	-0.01	-0.25 *	0.11	-0.29 *	0.12	-0.02	0.13	0.07	0.01	0.02	0.23	0.06	-0.13	0.06	-0.09
	TRN	0.11	0.25 *	-0.08	-0.02	-0.04	-0.07	0.25 *	0.14	0.01	0.02	-0.22	0.16	0.16	-0.09	0.06	0.13	0.12	0.07	-0.13	0.42 **	0.12	0.15	0.29 *	-0.06	0.04	0.05	-0.03
	INST	-0.05	0.00	-0.02	0.04	-0.02	0.02	-0.05	-0.07	-0.22	-0.09	-0.02	-0.07	0.10	-0.06	0.17	-0.03	0.12	0.04	-0.06	0.14	0.15	0.22	0.19	0.25 *	0.21	-0.03	-0.15
ADP	RG3	0.03	-0.09	-0.09	-0.05	-0.05	0.15	0.00	-0.08	-0.12	0.14	0.08	0.03	0.03	-0.04	-0.02	-0.04	0.12	0.07	0.16	-0.16	0.13	0.13	0.26 *	0.10	-0.08	0.01	-0.07
	CHN	-0.24	-0.01	-0.11	0.12	-0.06	-0.17	-0.09	-0.18	-0.09	-0.20	-0.01	-0.02	-0.02	0.27 *	0.05	0.00	0.12	-0.14	-0.22	0.06	-0.08	-0.10	-0.01	-0.25 *	0.00	-0.02	0.01
	REP	0.03	-0.01	-0.01	-0.11	0.21	0.05	0.04	0.07	0.03	0.14	0.02	-0.10	0.22	-0.03	0.14	-0.09	0.12	0.05	0.28 *	-0.14	0.10	0.02	-0.01	0.08	0.07	0.05	-0.02
	REPC	0.06	0.01	-0.23	0.04	0.11	0.02	0.03	0.13	0.00	0.23	0.11	-0.03	0.28 *	-0.02	0.06	-0.01	0.12	0.12	-0.16	0.14	0.13	0.12	-0.04	-0.04	-0.13	-0.09	-0.07
	LDR	0.06	0.03	-0.26 *	0.02	0.18	0.20	0.06	0.05	0.00	0.17	0.02	0.03	0.28 *	0.02	0.05	-0.03	0.12	-0.01	-0.08	0.06	0.23	0.19	0.07	-0.12	-0.11	0.01	-0.06
	VAL	-0.08	0.26 *	-0.04	0.02	0.00	0.23	0.14	0.16	-0.10	0.00	-0.17	0.09	0.09	-0.01	0.44 **	0.17	0.12	-0.01	0.13	0.03	0.01	-0.02	0.06	-0.01	-0.05	0.27 *	0.01
	MKT	0.23	-0.10	0.21	-0.21	0.06	0.15	-0.15	0.27 *	-0.11	0.21	0.02	-0.03	0.10	-0.20	-0.08	0.04	0.12	0.01	0.13	-0.14	0.12	-0.10	-0.15	0.17	-0.11	0.25	0.01
	DIL	-0.29 *	-0.06	0.81 **	-0.05	-0.04	-0.10	-0.02	-0.05	0.01	-0.16	-0.09	0.01	0.02	0.11	-0.04	0.05	0.12	-0.05	0.06	-0.13	-0.44 **	-0.24	0.05	-0.15	-0.05	-0.08	-0.03
	GLBL	0.00	-0.13	0.15	-0.06	0.06	0.00	-0.19	-0.25 *	-0.15	-0.04	0.08	-0.22	-0.12	-0.11	0.05	-0.16	0.12	0.08	-0.16	0.07	0.08	0.02	0.27 *	-0.21	0.10	-0.32 *	-0.02
	THN	-0.05	0.09	-0.17	-0.23	0.18	-0.09	0.18	0.28 *	-0.10	0.00	-0.17	0.16	-0.06	-0.11	-0.10	0.15	0.12	-0.24	0.12	0.00	0.01	0.01	0.14	0.08	-0.26 *	-0.03	-0.05
	CON	0.07	0.23	-0.03	-0.08	0.19	0.28 *	0.17	0.09	0.00	-0.15	-0.05	-0.14	-0.01	-0.19	0.05	-0.08	0.12	-0.02	0.04	0.13	0.18	0.07	0.10	0.02	-0.08	-0.08	0.07
	TT	-0.01	-0.19	0.18	-0.18	-0.04	0.00	-0.21	-0.15	0.10	0.10	0.15	-0.03	0.12	-0.01	0.10	-0.01	0.12	0.01	0.03	-0.01	-0.12	0.05	0.02	0.00	-0.17	-0.11	-0.06
	IT	0.07	0.17	-0.17	-0.44 **	-0.01	-0.02	0.19	0.20	-0.02	0.20	0.01	-0.10	0.06	-0.21	0.22	-0.12	0.12	-0.03	-0.09	0.25	0.02	0.02	0.17	0.02	-0.25 *	0.10	-0.10
	DIV	0.10	0.06	-0.12	-0.10	0.00	0.09	0.02	0.18	0.07	0.27 *	-0.08	-0.15	0.15	-0.16	0.04	-0.27 *	0.12	-0.10	0.11	-0.11	0.11	0.05	0.11	0.12	-0.04	0.09	0.06
	CUS	0.02	0.21	0.06	-0.19	0.25 *	0.23	0.22	0.21	-0.22	0.21	-0.13	-0.03	0.10	-0.28 *	0.25	-0.05	0.12	0.23	0.24	0.16	-0.04	0.03	0.20	0.08	-0.12	0.07	-0.16
INN	PAT	0.25 *	-0.19	0.15	-0.33 **	-0.03	0.07	-0.20	-0.14	0.14	0.02	0.18	-0.15	-0.06	-0.13	0.21	-0.14	0.12	-0.12	0.14	-0.27 *	-0.03	-0.03	0.11	-0.02	-0.17	-0.12	-0.16
	DRP	0.21	-0.15	0.15	-0.15	-0.08	0.07	-0.16	-0.10	0.15	0.21	0.07	0.00	0.02	-0.10	0.19	-0.10	0.12	0.01	0.01	-0.24	0.03	-0.09	-0.04	-0.06	-0.12	-0.15	-0.03
AR	AR1	0.05	-0.20	0.00	-0.02	-0.05	-0.16	-0.12	-0.16	-0.04	0.15	0.28 *	-0.02	-0.06	-0.06	-0.02	-0.04	0.12	0.03	-0.02	0.00	0.09	0.12	-0.09	-0.08	-0.18	-0.07	0.05
	AR3	0.09	-0.04	-0.12	-0.06	-0.05	0.04	-0.04	-0.15	0.11	-0.06	0.06	0.03	-0.18	-0.28 *	-0.15	-0.17	0.12	0.02	-0.03	-0.26 *	0.11	0.10	-0.13	-0.09	-0.14	0.02	0.05
ROA	ROA1	0.05	0.16	-0.06	0.18	0.01	0.07	0.19	0.07	0.01	0.10	0.02	0.90 **	0.09	-0.18	0.09	0.93 **	0.12	0.10	0.10	0.18	0.00	-0.02	-0.03	0.04	0.01	0.05	0.04
	ROA3	-0.09	0.18	0.01	0.26 *	0.03	0.14	0.19	0.06	-0.04	-0.05	-0.13	0.67 **	0.07	-0.11	0.01	0.80 **	0.12	0.10	0.13	0.18	-0.02	-0.04	-0.10	0.04	0.17	0.14	-0.02

Table 4.3 Continued

		Explicit Industry Knowledge (EIK)														Adaptability (ADP)											Innovation (INN)		Abnormal Returns		Return on Assets	
		EDU	EXP	EDUC	EDUR	CEO	SERV	IL	TRN	INST	RG3	CHN	REP	REPC	LDR	VAL	MKT	DIL	GLBL	THN	CON	TT	IT	DIV	CUS	PAT	DRP	AR1	AR3	ROA1	ROA3
RM	CCC	-0.01	-0.15	0.06	0.11	-0.10	0.14	0.18	0.11	-0.05	0.03	-0.24	0.03	0.06	0.06	-0.08	0.23	-0.29*	0.00	-0.05	0.07	-0.01	0.07	0.10	0.02	0.25 *	0.21	0.05	0.09	0.05	-0.09
	LTE	0.06	0.28 *	-0.04	0.07	0.19	0.09	0.18	0.25 *	0.00	-0.09	-0.01	-0.01	0.01	0.03	0.26 *	-0.10	-0.06	-0.13	0.09	0.23	-0.19	0.17	0.06	0.21	-0.19	-0.15	-0.20	-0.04	0.16	0.18
	GM	0.27 *	0.02	0.03	-0.18	0.03	0.06	-0.03	-0.08	-0.02	-0.09	-0.11	-0.01	-0.23	-0.26 *	-0.04	0.21	0.81 **	0.15	-0.17	-0.03	0.18	-0.17	-0.12	0.06	0.15	0.15	0.00	-0.12	-0.06	0.01
	RFA	0.02	0.07	-0.07	-0.06	-0.07	-0.10	-0.33 **	-0.02	0.04	-0.05	0.12	-0.11	0.04	0.02	0.02	-0.21	-0.05	-0.06	-0.23	-0.08	-0.18	-0.44 **	-0.10	-0.19	-0.33 **	-0.15	-0.02	-0.06	0.18	0.26 *
	SFA	-0.04	-0.08	0.03	0.03	0.13	-0.04	0.37 **	-0.04	-0.02	-0.05	-0.06	0.21	0.11	0.18	0.00	0.06	-0.04	0.06	0.18	0.19	-0.04	-0.01	0.00	0.25 *	-0.03	-0.08	-0.05	-0.05	0.01	0.03
	STA	-0.16	0.08	0.08	0.24	-0.11	0.38 **	0.05	-0.07	0.02	0.15	-0.17	0.05	0.02	0.20	0.23	0.15	-0.10	0.00	-0.09	0.28 *	0.00	-0.02	0.09	0.23	0.07	0.07	-0.16	0.04	0.07	0.14
	LTTA	0.13	0.15	-0.05	0.11	0.15	0.12	0.16	0.25 *	-0.05	0.00	-0.09	0.04	0.03	0.06	0.14	-0.15	-0.02	-0.19	0.18	0.17	-0.21	0.19	0.02	0.22	-0.20	-0.16	-0.12	-0.04	0.19	0.19
	DIS	0.18	0.03	-0.12	0.05	-0.04	0.04	0.05	0.14	-0.07	-0.08	-0.18	0.07	0.13	0.05	0.16	0.27 *	-0.05	-.025 *	0.28 *	0.09	-0.15	0.20	0.18	0.21	-0.14	-0.10	-0.16	-0.15	0.07	0.06
	MSEO	-0.05	-0.12	-0.08	-0.05	-0.20	-0.14	-0.17	0.01	-0.22	-0.12	-0.09	0.03	0.00	0.00	-0.10	-0.11	0.01	-0.15	-0.10	0.00	0.10	-0.02	0.07	-0.22	0.14	0.15	-0.04	0.11	0.01	-0.04
	ALC	-0.21	-0.16	-0.05	-0.11	0.03	0.20	-0.01	0.02	-0.09	0.14	-0.20	0.14	0.23	0.17	0.00	0.21	-0.16	-0.04	0.00	-0.15	0.10	0.20	0.27 *	0.21	0.02	0.21	0.15	-0.06	0.10	-0.05
	QR	-0.06	-0.30 *	0.03	-0.16	-0.10	-0.16	-0.12	-0.22	-0.02	0.08	-0.01	0.02	0.11	0.02	-0.17	0.02	-0.09	0.08	-0.17	-0.05	0.15	0.01	-0.08	-0.13	0.18	0.07	0.28 *	0.06	0.02	-0.13
	DE	0.02	0.13	-0.25 *	0.02	-0.13	-0.03	-0.30 *	0.16	-0.07	0.03	-0.02	-0.10	-0.03	0.03	0.09	-0.03	0.01	-0.22	0.16	-0.14	-0.03	-0.10	-0.15	-0.03	-0.15	0.00	-0.02	0.03	0.90 **	0.67 **
	NM	-0.05	0.04	0.12	-0.03	-0.07	0.16	-0.01	0.16	0.10	0.03	-0.02	0.22	0.28 *	0.28 *	0.09	0.10	0.02	-0.12	-0.06	-0.01	0.12	0.06	0.15	0.10	-0.06	0.02	-0.06	-0.18	0.09	0.07
	WACC	-0.03	0.13	-0.03	-0.15	0.20	-0.14	-0.25 *	-0.09	-0.06	-0.04	0.27 *	-0.03	-0.02	0.02	-0.01	-0.20	0.11	-0.11	-0.11	-0.19	-0.01	-0.21	-0.16	-0.28 *	-0.13	-0.10	-0.06	-0.28 *	-0.18	-0.11
	ITO	0.20	0.22	0.23	0.37 **	0.02	0.25	0.11	0.06	0.17	-0.02	0.05	0.14	0.06	0.05	0.44 **	-0.08	-0.04	0.05	-0.10	0.05	0.10	0.22	0.04	0.25	0.21	0.19	-0.02	-0.15	0.09	0.01
	CFA	0.09	0.12	-0.29 *	-0.07	-0.07	0.03	-0.29 *	0.13	-0.03	-0.04	0.00	-0.09	-0.01	-0.03	0.17	0.04	0.05	-0.16	0.15	-0.08	-0.01	-0.12	-0.27 *	-0.05	-0.14	-0.10	-0.04	-0.17	0.93 **	0.80 **
	BMR	0.13	-0.01	-0.27 *	-0.17	0.12	-0.04	-0.17	0.00	0.04	-0.11	-0.12	-0.19	-0.17	-0.16	0.14	0.13	0.14	-0.11	0.06	0.00	-0.12	-0.11	0.15	0.08	-0.21	-0.16	-0.22	-0.11	0.07	0.10
	EPS	0.06	0.18	0.08	0.08	0.11	0.08	-0.02	0.07	0.04	0.07	-0.14	0.05	0.12	-0.01	-0.01	0.01	-0.05	0.08	-0.24	-0.02	0.01	-0.03	-0.10	0.23	-0.12	0.01	0.03	0.02	0.10	0.10
	CTP	-0.21	-0.19	-0.09	0.04	-0.11	-0.05	0.13	-0.13	-0.06	0.16	-0.22	0.28 *	-0.16	-0.08	0.13	0.13	0.06	-0.16	0.12	0.04	0.03	-0.09	0.11	0.24	0.14	0.01	-0.02	-0.03	0.10	0.13
	SAL	0.25 *	0.28 *	0.07	0.27 *	0.35 **	0.24	0.07	0.42 **	0.14	-0.16	0.06	-0.14	0.14	0.06	0.03	-0.14	-0.13	0.07	0.00	0.13	-0.01	0.25	-0.11	0.16	-0.27 *	-0.24	0.00	-0.26 *	0.18	0.18
SG	SEPRL	0.04	0.08	0.18	0.27 *	-0.03	0.06	0.01	0.12	0.15	0.13	-0.08	0.10	0.13	0.23	0.01	0.12	-0.44 **	0.08	0.01	0.18	-0.12	0.02	0.11	-0.04	-0.03	0.03	0.09	0.11	0.00	-0.02
	CIN	-0.06	0.08	0.18	0.40 **	0.04	0.15	0.02	0.15	0.22	0.13	-0.10	0.02	0.12	0.19	-0.02	-0.10	-0.24	0.02	0.01	0.07	0.05	0.02	0.05	0.03	-0.03	-0.09	0.12	0.10	-0.02	-0.04
	IND	0.11	0.18	0.26 *	0.30 *	-0.04	-0.03	0.23	0.29 *	0.19	0.26 *	-0.01	-0.01	-0.04	0.07	0.06	-0.15	0.05	0.27 *	0.14	0.10	0.02	0.17	0.11	0.20	0.11	-0.04	-0.09	-0.13	-0.03	-0.10
	EM	-0.04	-0.27 *	-0.08	-0.12	-0.19	0.07	0.06	-0.06	.250 *	0.10	-.250 *	0.08	-0.04	-0.12	-0.01	0.17	-0.15	-0.21	0.08	0.02	0.00	0.02	0.12	0.08	-0.02	-0.06	-0.08	-0.09	0.04	0.04
	PE	-0.03	0.28 *	0.00	0.09	0.11	-0.11	-0.13	0.04	0.21	-0.08	0.00	0.07	-0.13	-0.11	-0.05	-0.11	-0.05	0.10	-0.26 *	-0.08	-0.17	-0.25 *	-0.04	-0.12	-0.17	-0.12	-0.18	-0.14	0.01	0.17
	OWN	-0.11	0.19	0.04	0.09	0.11	0.26 *	0.06	0.05	-0.03	0.01	-0.02	0.05	-0.09	0.01	0.27 *	0.25	-0.08	-0.32 *	-0.03	-0.08	-0.11	0.10	0.09	0.07	-0.12	-0.15	-0.07	0.02	0.05	0.14
	OPT	0.06	0.04	-0.23	-0.12	0.02	-0.10	-0.09	-0.03	-0.15	-0.07	0.01	-0.02	-0.07	-0.06	0.01	0.01	-0.03	-0.02	-0.05	0.07	-0.06	-0.10	0.06	-0.16	-0.16	-0.03	0.05	0.05	0.04	-0.02

Table 4.3 Continued

		Explicit Industry Knowledge (EIK)													Adaptability (ADP)											Innovation (INN)		Abnormal Returns		Return on Assets	
		EDU	EXP	EDUC	EDUR	CEO	SERV	IL	TRN	INST	RG3	CHN	REP	REPC	LDR	VAL	MKT	DIL	GLBL	THN	CON	TT	IT	DIV	CUS	PAT	DRP	AR1	AR3	ROA1	ROA3
EIK	EDU	1.00	0.17	-0.02	0.12	-0.01	0.14	0.13	0.33 **	0.36 **	-0.15	0.08	-0.03	0.03	-0.20	-0.09	0.02	0.20	0.12	0.02	0.19	-0.03	0.11	-0.14	-0.13	0.01	-0.06	-0.14	-0.14	0.09	0.11
	EXP	0.17	1.00	-0.04	0.08	0.49 **	0.12	-0.12	0.23	0.33 **	-0.14	0.25 *	-0.21	-0.26 *	-0.24	0.06	-0.08	-0.04	0.08	-0.11	-0.11	-0.33 **	-0.06	-0.17	-0.13	-0.22	-0.16	-0.22	-0.28 *	0.12	0.21
	EDUC	-0.02	-0.04	1.00	0.50 **	-0.19	-0.02	0.15	-0.05	-0.01	0.04	0.06	0.15	0.21	0.20	-0.11	0.08	-0.04	0.34 **	0.05	0.21	0.18	0.18	0.10	0.19	0.06	0.08	0.07	-0.05	-0.24	-0.23
	EDUR	0.12	0.08	0.50 **	1.00	0.03	0.13	0.27 *	0.09	0.08	0.05	-0.15	-0.01	0.15	0.21	-0.03	-0.18	-0.12	0.16	-0.06	0.18	0.19	0.07	0.09	0.19	0.02	0.03	0.01	0.02	-0.03	0.07
	CEO	-0.01	0.49 **	-0.19	0.03	1.00	0.12	0.02	0.15	0.11	-0.33 **	0.01	-0.10	-0.27 *	-0.12	-0.01	-0.08	0.14	0.02	-0.19	-0.11	-0.01	0.00	0.04	0.15	-0.17	-0.27 *	-0.04	-0.24	-0.09	0.05
	SERV	0.14	0.12	-0.02	0.13	0.12	1.00	.305 *	0.21	0.17	-0.14	-0.18	0.00	0.06	0.15	0.03	.334 **	0.03	0.01	0.06	0.07	0.05	.349 **	0.16	0.20	-0.06	-0.07	-0.20	-0.19	0.01	0.06
	IL	0.13	-0.12	0.15	0.27 *	0.02	0.31 *	1.00	0.25 *	0.13	0.22	-0.07	0.35 **	0.16	0.18	-0.10	0.06	-0.10	0.19	0.21	0.27 *	0.29 *	0.34 **	0.38 **	0.41 **	0.34 **	0.09	0.01	0.00	-0.31 *	-0.29 *
	TRN	0.33 **	0.23	-0.05	0.09	0.15	0.21	0.25 *	1.00	0.34 **	-0.07	0.03	0.08	-0.09	-0.03	-0.08	0.14	-0.08	-0.15	0.19	0.13	-0.07	0.24	-0.08	0.17	-0.20	-0.18	-0.19	-0.24	0.18	0.17
	INST	0.36 **	0.33 **	-0.01	0.08	0.11	0.17	0.13	0.34 **	1.00	0.04	-0.03	0.02	-0.24	-0.31 *	-0.04	0.15	-0.02	0.00	-0.24	-0.19	-0.05	-0.03	0.05	0.01	-0.05	-0.08	-0.16	-0.32 *	-0.02	0.13
ADP	RG3	-0.15	-0.14	0.04	0.05	-0.33 **	-0.14	0.22	-0.07	0.04	1.00	0.05	0.15	0.10	0.15	-0.03	-0.07	-0.10	0.07	0.11	0.10	0.15	0.07	0.12	0.06	0.38 **	0.38 **	0.30 *	0.14	0.02	-0.21
	CHN	0.08	0.25 *	0.06	-0.15	0.01	-0.18	-0.07	0.03	-0.03	0.05	1.00	-0.13	0.06	0.14	0.12	-0.23	-0.11	0.04	0.16	-0.02	-0.21	0.05	-0.37 **	-0.23	-0.15	-0.14	-0.10	-0.09	0.01	0.01
	REP	-0.03	-0.21	0.15	-0.01	-0.10	0.00	0.35 **	0.08	0.02	0.15	-0.13	1.00	0.30 *	0.37 **	0.04	0.00	-0.14	-0.13	-0.01	0.17	0.25	0.14	0.15	0.41 **	0.28 *	0.03	0.01	-0.08	-0.05	-0.05
	REPC	0.03	-0.26 *	0.21	0.15	-0.27 *	0.06	0.16	-0.09	-0.24	0.10	0.06	0.30 *	1.00	0.70 **	-0.01	0.06	-0.24	0.00	0.11	0.01	0.25 *	0.27 *	0.15	0.17	0.05	0.12	0.16	-0.02	0.08	-0.08
	LDR	-0.20	-0.24	0.20	0.21	-0.12	0.15	0.18	-0.03	-0.31 *	0.15	0.14	0.37 **	0.70 **	1.00	-0.01	-0.08	-0.19	-0.03	0.16	0.17	0.17	0.15	0.16	0.25 *	0.00	0.01	0.01	0.00	0.05	-0.04
	VAL	-0.09	0.06	-0.11	-0.03	-0.01	0.03	-0.10	-0.08	-0.04	-0.03	0.12	0.04	-0.01	-0.01	1.00	0.02	-0.04	0-.25 *	-0.11	0.12	-0.08	0.10	-0.02	0.19	0.03	-0.09	-0.09	-0.12	0.08	0.13
	MKT	0.02	-0.08	0.08	-0.18	-0.08	0.33 **	0.06	0.14	0.15	-0.07	-0.23	0.00	0.06	-0.08	0.02	1.00	-0.05	-0.07	0.13	0.01	0.10	0.18	0.26 *	0.08	0.00	0.08	-0.02	-0.21	0.05	0.01
	DIL	0.20	-0.04	-0.04	-0.12	0.14	0.03	-0.10	-0.08	-0.02	-0.10	-0.11	-0.14	-0.24	-0.19	-0.04	-0.05	1.00	0.06	-0.10	-0.15	0.23	-0.15	-0.04	0.11	0.09	-0.05	0.02	-0.10	-0.06	-0.01
	GLBL	0.12	0.08	0.34 **	0.16	0.02	0.01	0.19	-0.15	0.00	0.07	0.04	-0.13	0.00	-0.03	-0.25 *	-0.07	0.06	1.00	-0.15	0.02	0.17	-0.06	0.04	0.07	0.22	0.29 *	0.21	0.13	-0.18	-0.25
	THN	0.02	-0.11	0.05	-0.06	-0.19	0.06	0.21	0.19	-0.24	0.11	0.16	-0.01	0.11	0.16	-0.11	0.13	-0.10	-0.15	1.00	0.27 *	-0.05	0.31 *	0.02	0.05	-0.16	-0.26 *	-0.14	-0.08	0.16	0.08
	CON	0.19	-0.11	0.21	0.18	-0.11	0.07	0.27 *	0.13	-0.19	0.10	-0.02	0.17	0.01	0.17	0.12	0.01	-0.15	0.02	0.27 *	1.00	-0.03	0.23	0.05	0.13	0.11	-0.04	-0.07	0.05	-0.14	-0.12
	TT	-0.03	-0.33 **	0.18	0.19	-0.01	0.05	0.29 *	-0.07	-0.05	0.15	-0.21	0.25	0.25 *	0.17	-0.08	0.10	0.23	0.17	-0.05	-0.03	1.00	0.16	0.43 **	0.31 *	0.44 **	0.19	0.43 **	0.17	0.00	-0.14
	IT	0.11	-0.06	0.18	0.07	0.00	0.35 **	0.34 **	0.24	-0.03	0.07	0.05	0.14	0.27 *	0.15	0.10	0.18	-0.15	-0.06	0.31 *	0.23	0.16	1.00	0.33 **	0.36 **	0.20	0.03	0.08	0.10	-0.07	-0.22
	DIV	-0.14	-0.17	0.10	0.09	0.04	0.16	0.38 **	-0.08	0.05	0.12	-0.37 **	0.15	0.15	0.16	-0.02	0.26 *	-0.04	0.04	0.02	0.05	0.43 **	0.33 **	1.00	0.30 *	0.24	0.21	0.08	0.16	-0.22	-0.35 **
	CUS	-0.13	-0.13	0.19	0.19	0.15	0.20	0.41 **	0.17	0.01	0.06	-0.23	0.41 **	0.17	0.25 *	0.19	0.08	0.11	0.07	0.05	0.13	0.31 *	0.36 **	0.30 *	1.00	0.23	-0.01	-0.02	-0.07	-0.08	-0.11
INN	PAT	0.01	-0.22	0.06	0.02	-0.17	-0.06	0.34 **	-0.20	-0.05	0.38 **	-0.15	0.28 *	0.05	0.00	0.03	0.00	0.09	0.22	-0.16	0.11	0.44 **	0.20	0.24	0.23	1.00	0.58 **	0.35 **	0.17	-0.23	-0.46 **
	DRP	-0.06	-0.16	0.08	0.03	-0.27 *	-0.07	0.09	-0.18	-0.08	0.38 **	-0.14	0.03	0.12	0.01	-0.09	0.08	-0.05	0.29 *	-0.26 *	-0.04	0.19	0.03	0.21	-0.01	0.58 **	1.00	0.36 **	0.39 **	-0.06	-0.36 **
AR	AR1	-0.14	-0.22	0.07	0.01	-0.04	-0.20	0.01	-0.19	-0.16	0.30 *	-0.10	0.01	0.16	0.01	-0.09	-0.02	0.02	0.21	-0.14	-0.07	0.43 **	0.08	0.08	-0.02	0.35 **	0.36 **	1.00	0.43 **	0.04	-0.21
	AR3	-0.14	-0.28 *	-0.05	0.02	-0.24	-0.19	0.00	-0.24	-0.32 *	0.14	-0.09	-0.08	-0.02	0.00	-0.12	-0.21	-0.10	0.13	-0.08	0.05	0.17	0.10	0.16	-0.07	0.17	0.39 **	0.43 **	1.00	-0.07	-0.24
ROA	ROA1	0.09	0.12	-0.24	-0.03	-0.09	0.01	-0.31 *	0.18	-0.02	0.02	0.01	-0.05	0.08	0.05	0.08	0.05	-0.06	-0.18	0.16	-0.14	0.00	-0.07	-0.22	-0.08	-0.23	-0.06	0.04	-0.07	1.00	0.79 **
	ROA3	0.11	0.21	-0.23	0.07	0.05	0.06	-0.29 *	0.17	0.13	-0.21	0.01	-0.05	-0.08	-0.04	0.13	0.01	-0.01	-0.25	0.08	-0.12	-0.14	-0.22	-0.35 **	-0.11	-0.46 **	-0.36 **	-0.21	-0.24	0.79 **	1.00

AR were significantly and negatively correlated with WAAC, the CEO's base salary and bonuses, the years of industry-specific experience at Board Level, and the directors' high-level membership of industry institutions. ROAs were significantly correlated with the ratio of equity to fixed assets, the debt/equity ratio and the cash flow to assets ratio. ROAs were significantly and negatively correlated with the perception that the firms were leaders in their industry, diversification of products, the number of patents or copyrights lodged, and the creation or adoption of a disruptive technology.

4.6.2 Regressions

We grouped the remaining fifty-three proxies under their relevant core competency group. We then executed four separate Multiple Linear Regressions (five models in each regression, each representing a core competency group) against the four dependent variables. The regressions are depicted in Tables 4.4 to 4.7. We depicted significance levels by converting the P values to * for significance at the 10% level, ** for significance at the 5% level, and *** for significance at the 1% level and report standardised betas.

Table 4.4 shows seven statistically significant predictors of short-term AR (t + 1) while controlling for size and industry. Model 1 covering resource maximisation depicts the CEO's base salary and bonuses as significant. Model 2, covering strong governance finds that ASX 'please explain' requests are significant. Model 4 shows that revenue growth over the three years ex-ante SEO and technology transfer are significant adaptability measures significant. None of the explicit industry knowledge or innovation variables are significant in Models 3 and 5 respectively.

Table 4.4 Short-term abnormal returns: Dependent variable is AR1

		Model 1		Model 2		Model 3		Model 4		Model 5	
		b	t	b	t	b	t	b	t	b	t
Intercept			2.12**		0.70		1.93 *		0.83		-0.03
Industry		0.14	0.74	0.06	0.46	0.05	0.37	-0.14	-0.71	0.12	0.92
Log Total Assets		-0.71	-3.26***	-0.38	-3.04***	-0.34	-2.08**	-0.24	-1.86*	-0.25	-1.86**
RM	CCC	-0.02	-0.17								
	LTE	-0.48	-1.64								
	GM	0.03	0.23								
	RFA	0.01	0.05								
	SFA	0.07	0.47								
	STA	-0.07	-0.43								
	LTTA	0.35	1.23								
	DIS	-0.10	-0.58								
	MSEO	-0.08	-0.52								
	ALC	0.11	0.79								
	QR	-0.01	-0.03								
	DE	0.33	1.11								
	NM	0.12	0.89								
	WACC	-0.15	-0.91								
	ITO	-0.06	-0.48								
	CFA	-0.02	-0.05								
	BMR	-0.14	-0.79								
	EPS	0.03	0.20								
	CTP	0.00	0.01								
	SAL	0.44	2.28**								
SG	SEPRL			-0.02	-0.09						
	CIN			0.27	1.29						
	IND			-0.10	-0.76						
	EM			-0.15	-1.20						
	PE			-0.24	-1.84*						
	OWN			-0.14	-1.09						
	OPT			0.06	0.49						
EIK	EDU					-0.05	-0.37				
	EXP					-0.10	-0.61				
	EDUC					0.02	0.10				
	EDUR					0.09	0.58				
	CEO					0.12	0.79				
	SERV					-0.10	-0.68				
	IL					0.00	0.03				
	TRN					0.01	0.06				
	INST					-0.04	-0.27				
ADP	RG3							0.26	2.16**		
	CHN							-0.14	-0.96		
	REP							-0.14	-0.95		
	REPC							0.13	0.73		
	LDR							-0.06	-0.30		
	VAL							-0.02	-0.12		
	MKT							-0.04	-0.36		
	DIL							-0.05	-0.40		
	GLBL							0.12	0.91		
	THN							-0.13	-0.95		
	CON							-0.05	-0.40		
	TT							0.41	2.70***		
	IT							0.14	0.92		
	DIV							-0.25	-1.66		
	CUS							-0.22	-1.18		
INN	PAT									0.15	0.90
	DRP									0.20	1.40
Adj R Square		**0.06**		**0.13**		**0.01**		**0.20**		**0.17**	

Table 4.5 depicts the nine statistically significant predictors of long-term (t + 3) ARs. After controlling for size and industry in Model 1, debt/equity ratio, the weighted average cost of capital, and the cash flow to total assets, ratio resource maximisation variables are all significant. For Model 3, the explicit industry knowledge variables capturing the CEO's general tertiary qualification and the CEO's industry-specific tertiary qualifications are significant. Model 4 finds the firm's reputation, an adaptability measure, is significant. Finally, Model 5 finds the two innovation variables, the number of patents it lodged and the creation or adoption of a disruptive technology, are both significant. None of the governance variables are significant in Model 2.

Table 4.6 presents the fourteen statistically significant predictors of the ROA reported the year after the SEO (t + 1). Model 1 finds several resource maximisation variables significant after controlling for industry and size. They are Gross Margin, Short-term Debt to Total Assets, the discount offered on shares at SEO, the number of prior SEOs, the debt/equity ratio, the ratio of EBIT to gross revenue, the Cash flow to total assets ratio, the book-to-market ratio, and earnings per share. Model 3 shows the CEO's tertiary qualifications, the CEO's specific industry experience, and whether the firm is perceived as an industry leader. All are significant explicit industry knowledge variables. Two adaptability variables, technology transfer and diversification of products, are significant in Model 4. No governance or innovation variables are significant in Models 3 and 5 respectively.

The smaller number of statistically significant predictors of the three-year post-SEO ROA, are depicted in Table 4.7. They are the cash flow to total assets ratio (resource maximisation Model 1), and technology transfer and the diversification of products (adaptability Model 4). After controlling for industry and size, none of the other variables are significant predictors in Models 1 to 5.

This provides partial support for H1; aspects of four of the core competencies are positively related to ex-post-SEO financial performance. Surprisingly, there is not a significant positive relationship with strong governance.

Table 4.5 Long-term abnormal returns: Dependent variable is AR3

		Model 1		Model 2		Model 3		Model 4		Model 5	
		b	t	b	t	b	t	b	t	b	t
Intercept			4.06***		1.30		3.95***		2.01*		0.54
Industry		0.78	0.22	0.00	0.04	-0.02	-0.16	-0.18	-0.98	-0.10	-0.84
Log Total Assets		-0.71	0.74***	-0.51	-4.30***	-0.50	-3.47***	-0.52	-4.18***	-0.54	-4.49***
RM	CCC	0.02	0.18								
	LTE	-0.06	-0.26								
	GM	-0.17	-1.45								
	RFA	-0.05	-0.42								
	SFA	-0.02	-0.15								
	STA	-0.03	-0.22								
	LTTA	0.11	0.46								
	DIS	-0.18	-1.22								
	MSEO	0.00	0.01								
	ALC	-0.05	-0.39								
	QR	-0.17	-1.23								
	DE	0.74	3.05***								
	NM	0.00	0.03								
	WACC	-0.31	-2.35**								
	ITO	-0.13	-1.21								
	CFA	-0.51	-1.87*								
	BMR	0.06	0.40								
	EPS	0.13	1.10								
	CTP	0.04	0.32								
	SAL	0.12	0.75								
SG	SEPRL			0.06	0.31						
	CIN			0.16	0.81						
	IND			-0.09	-0.71						
	EM			-0.18	-1.56						
	PE			-0.14	-1.16						
	OWN			-0.04	-0.34						
	OPT			0.05	0.43						
EIK	EDU					-0.02	-0.19				
	EXP					0.08	0.56				
	EDUC					-0.25	-1.86*				
	EDUR					0.26	1.85*				
	CEO					-0.18	-1.37				
	SERV					-0.05	-0.37				
	IL					-0.03	-0.20				
	TRN					0.04	0.30				
	INST					-0.22	-1.66				
ADP	RG3							0.04	0.38		
	CHN							-0.17	-1.17		
	REP							-0.25	-1.79		
	REPC							-0.13	-0.77*		
	LDR							0.15	0.83		
	VAL							-0.09	-0.74		
	MKT							-0.29	-2.40		
	DIL							-0.16	-1.25		
	GLBL							0.08	0.62		
	THN							-0.05	-0.39		
	CON							0.01	0.05		
	TT							0.06	0.42		
	IT							0.16	1.13		
	DIV							-0.02	-0.16		
	CUS							-0.20	-1.11		
INN	PAT									-0.36	-2.39***
	DRP									0.42	3.23***
Adj R Square		**0.37**		**0.21**		**0.23**		**0.24**		**0.33**	

Table 4.6 Short-term return on assets: Dependent variable is ROA

		Model 1		Model 2		Model 3		Model 4		Model 5	
		b	t	b	t	b	t	b	t	b	t
Intercept			-0.11		-0.89		-0.98		-0.79		-2.98***
Industry		0.09	1.96**	0.00	0.03	-0.12	-0.99	-0.02	-0.08	0.01	0.04
Log Total Assets		-0.02	-0.32	0.55	4.50***	-0.50	3.67***	0.53	4.17***	0.49	3.73***
RM	CCC	-0.03	-0.74								
	LTE	-0.06	-0.81								
	GM	-0.07	-1.89*								
	RFA	0.04	1.05								
	SFA	0.04	1.16								
	STA	-0.07	-1.70*								
	LTTA	0.00	0.02								
	DIS	0.10	2.11**								
	MSEO	-0.10	-2.69**								
	ALC	0.08	2.18								
	QR	0.02	0.40								
	DE	0.48	6.47***								
	NM	0.10	2.99***								
	WACC	-0.05	-1.15								
	ITO	-0.01	-0.17								
	CFA	0.55	6.57***								
	BMR	-0.13	-2.94***								
	EPS	0.08	2.13**								
	CTP	-0.06	-1.48								
	SAL	-0.01	-0.16								
SGE (SEPRL)	SEPRL			0.02	0.12						
	CIN			-0.05	-0.24						
	IND			-0.15	-1.13						
	EM			0.11	0.90						
	PE			-0.05	-0.41						
	OWN			0.04	0.34						
	OPT			0.07	0.52						
EDU	EDU					0.06	0.52				
	EXP					0.01	0.10				
	EDUC					-0.25	-1.98*				
	EDUR					0.09	0.71				
	CEO					-0.27	-2.12**				
	SERV					-0.07	-0.58				
	IL					-0.29	-2.17**				
	TRN					0.09	0.66				
	INST					-0.13	-1.03				
ADP	RG3							0.11	0.90		
	CHN							-0.12	-0.82		
	REP							-0.03	-0.20		
	REPC							0.05	0.29		
	LDR							0.00	-0.01		
	VAL							0.16	1.23		
	MKT							0.05	0.41		
	DIL							-0.09	-0.71		
	GLBL							-0.13	-1.03		
	THN							0.16	1.13		
	CON							-0.17	-1.30		
	TT							0.36	2.38**		
	IT							-0.05	-0.36		
	DIV							-0.27	-1.79*		
	CUS							-0.10	-0.53		
INN	PAT									-0.07	-0.42
	DRP									0.13	0.94
Adj R Square		**0.06**		**0.13**		**0.01**		**0.20**		**0.17**	

Table 4.7 Long-term return on assets: Dependent variable is ROA 3

		Model 1		Model 2		Model 3		Model 4		Model 5	
		b	t	b	t	b	t	b	t	b	t
Intercept			-0.12		-0.63		-1.71*		-0.57		-1.53
Industry		0.16	1.39	0.09	0.80	-0.02	-0.17	0.12	0.70	0.04	0.36
Log Total Assets		0.10	0.75	0.64	6.02***	0.57	4.28***	-0.57	5.04***	0.47	3.93***
RM	CCC	-0.13	-1.41								
	LTE	-0.12	-0.63								
	GM	-0.09	-0.97								
	RFA	0.09	0.95								
	SFA	0.06	0.67								
	STA	0.09	0.87								
	LTTA	0.10	0.54								
	DIS	0.16	1.40								
	MSEO	-0.05	-0.51								
	ALC	-0.06	-0.72								
	QR	-0.13	-1.27								
	DE	-0.18	-0.95								
	NM	0.04	0.50								
	WACC	-0.01	-0.10								
	ITO	-0.06	-0.71								
	CFA	0.91	4.37***								
	BMR	-0.11	-1.02								
	EPS	0.00	-0.05								
	CTP	0.01	0.15								
	SAL	-0.01	-0.08								
SG	SEPRL			0.04	0.22						
	CIN			-0.14	-0.82						
	IND			-0.20	-1.75						
	EM			0.10	0.98						
	PE			0.11	1.04						
	OWN			0.16	1.49						
	OPT			-0.05	-0.49						
EIK	EDU					0.02	0.21				
	EXP					-0.04	-0.29				
	EDUC					-0.26	-2.08				
	EDUR					0.18	1.37				
	CEO					-0.13	-1.07				
	SERV					-0.04	-0.37				
	IL					-0.25	-1.92				
	TRN					-0.02	-0.14				
	INST					0.03	0.29				
ADP	RG3							-0.11	-0.99		
	CHN							-0.12	-0.97		
	REP							0.07	0.54		
	REPC							-0.09	-0.56		
	LDR							0.03	0.21		
	VAL							0.17	1.53		
	MKT							0.05	0.48		
	DIL							-0.09	-0.78		
	GLBL							-0.19	-1.63		
	THN							0.13	1.03		
	CON							-0.10	-0.88		
	TT							0.28	2.16**		
	IT							-0.13	-0.97		
	DIV							-0.29	-2.18**		
	CUS							0.00	-0.01		
INN	PAT									-0.15	-1.02
	DRP									-0.12	-0.94
Adj R Square		**0.06**		**0.13**		**0.01**		**0.20**		**0.17**	

4.6.3 Data reduction: Factors

One issue with the regression analysis is the large number of predictor variables relative to the number of cases. To address this issue, we conduct a factor analysis to identify the underlying dimensions or factors in the predictor variables. Table 4.8 presents our rotated component matrix for each of the five dimensions measured by the fifty-three variables with the significant variables shaded. As the innovation dimension comprises only two variables, these two variables were kept to represent that dimension. The remaining fifty-one variables are factor analysed to identify eleven factors that can be used to represent the underlying dimensions resource maximisation, explicit industry knowledge, and adaptability. The Bartlett's tests of sphericity are all significant at $p < 0.01$, indicating that that factor analysis may prove to be useful for variable reduction. The Kaiser-Meyer-Olkin (KMO) Test values are all at or near 0.5, revealing that the sample size is adequate but on the small side.

There is debate in the literature as to how to select the number of underlying factors. In the context of the current study, the objective of the exploratory factor analysis is variable reduction to a smaller set of common dimensions to employ in the subsequent predictive modelling. The default Kaiser criterion of selecting factors where the eigenvalue is greater than one, while common, is not necessarily the best one. Sometimes, the Kaiser criterion results in too many factors and sometime too few. Many experts (Cattell 1966; Streiner 1994) recommend the scree test and exercising judgement over the break in the scree (the slope of the scree plot) as the indicator of how many factors to extract. This thesis adopts a combination approach and selects factors with eigenvalues greater than one and which fall in the scree up to the factor after the first break in the scree. For one dimension, explicit industry knowledge, there is no one clear break in the scree (see Figure 4.4), so the eigenvalue greater than one criterion dominates the identification of the factors. While this approach is somewhat judgmental, it is considered appropriate given the exploratory nature of the research and given that the objective is not the factors per se but developing an initial predictive model. Extensive testing of the factor structure is beyond the scope of the current research but represents an opportunity for future research.

The resource maximisation dimension (RM) variables are largely the traditional accounting measures of a firm's ability to maximise or leverage its financial resources. The group was reduced to two factors based on the scree plot (see Figure 4.2). The first factor, labelled 'Leverage,' reflects the financial advantage attendant to maximising financial resources. The second factor is termed 'Market Valuation,' and represents the materialisation of financial advantage. The heaviest loadings on the Leverage factor are five accounting measures that capture aspects of leverage. The heaviest loadings on the market valuation factor are two market-related measures, the SEO discount, and the book-to-market ratio.

The strong governance dimensions (SG) reduced to two factors, based on the scree plot (see Figure 4.3). The first factor is termed 'Chair Independence,' to denote the importance of an independent chairman and board of directors in ensuring strong governance. Its two heaviest loadings concerned the chairman's independence. The second factor is termed 'Agency,' because the two heaviest loading components are linked to earning's management and ASX warnings, both of which can be related to agency theory and costs.

The explicit industry knowledge dimension is captured by nine proxy variables (EIK). The scree plot (see Figure 4.4) identified that these variables reduced to four factors: 'Qualifications,' 'Experience,' 'Education,' and 'Leadership.' The labels are based on the high loadings of the

Table 4.8 Rotated factor matrix

Resource Maximization			Strong Governance			Explicit Industry Knowledge				Adaptability to Change			
	Leverage	Market Valuation		Chair Independence	Agency		Qualification	Experience	CEO Education	CEO Leadership		Reputation	Adaptability	Leverage Resources
CCC	0.172	-0.061	SEPRL	0.914	-0.048	EDU	0.802	-0.080	0.036	0.033	RG3	0.372	0.012	-0.030
LTE	0.812	0.131	CIN	0.927	-0.088	EXP	0.318	0.817	0.069	-0.124	CHN	0.216	-0.668	0.145
GM	-0.041	-0.163	IND	0.223	-0.664	EDUC	-0.036	-0.136	0.873	-0.043	REP	0.530	0.293	0.096
RFA	0.029	0.087	PRU	0.000	0.563	EDUR	0.070	0.104	0.837	0.204	REPC	0.792	0.054	0.067
SFA	0.251	-0.017	PE	0.311	0.587	CEO	-0.061	0.867	-0.098	0.155	LDR	0.845	-0.019	0.095
STA	0.483	-0.283	OWN	0.283	-0.027	SERV	0.108	0.167	-0.033	0.759	VAL	-0.100	0.021	0.420
LTTA	0.747	0.194	OPT	-0.151	0.452	IL	0.114	-0.157	0.224	0.783	MKT	-0.212	0.477	0.324
DIS	0.067	0.787				TRN	0.621	0.137	-0.055	0.350	DIL	-0.291	0.242	-0.415
MSEO	-0.086	0.278				INST	0.746	0.195	0.039	0.041	GLBL	0.148	0.034	-0.514
ALC	-0.090	0.433									THN	0.159	-0.042	0.568
QR	-0.412	-0.213									CON	0.172	0.059	0.491
DE	0.580	0.111									TT	0.344	0.612	-0.333
NM	0.217	0.276									IT	0.271	0.365	0.538
WACC	-0.565	0.318									DIV	0.169	0.731	0.044
ITO	0.272	-0.020									CUS	0.315	0.596	0.121
CFA	0.548	0.042												
BMR	0.068	0.726												
EPS	0.236	-0.023												
CTP	0.063	-0.133												
SAL	0.402	0.235												

KMO	0.5	0.5	0.6	0.5
Bartlett				
Chi-Square	343.37	77.70	85.91	184.64
Sig.	0.00	0.00	0.00	0.00

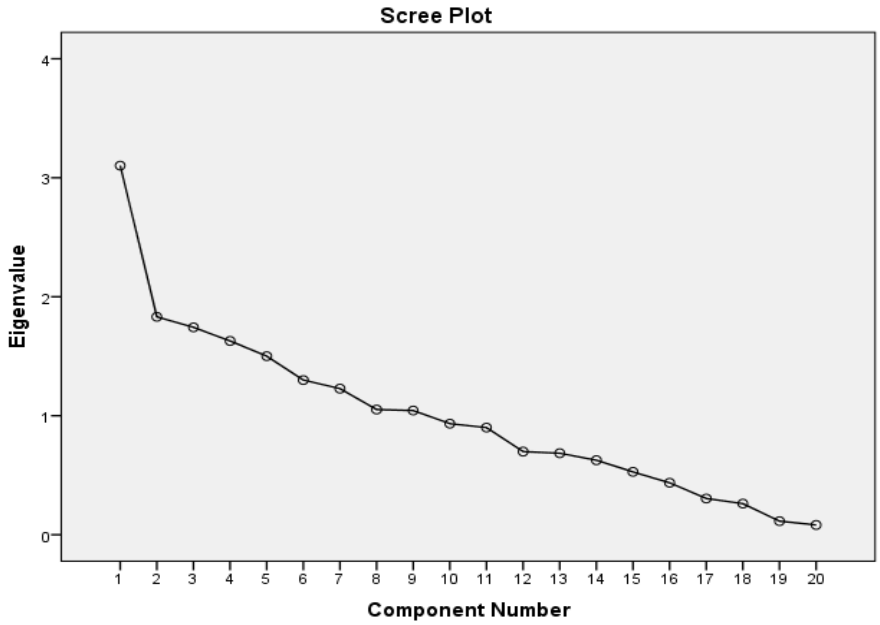


Figure 4.2 Scree plot for resource maximisation

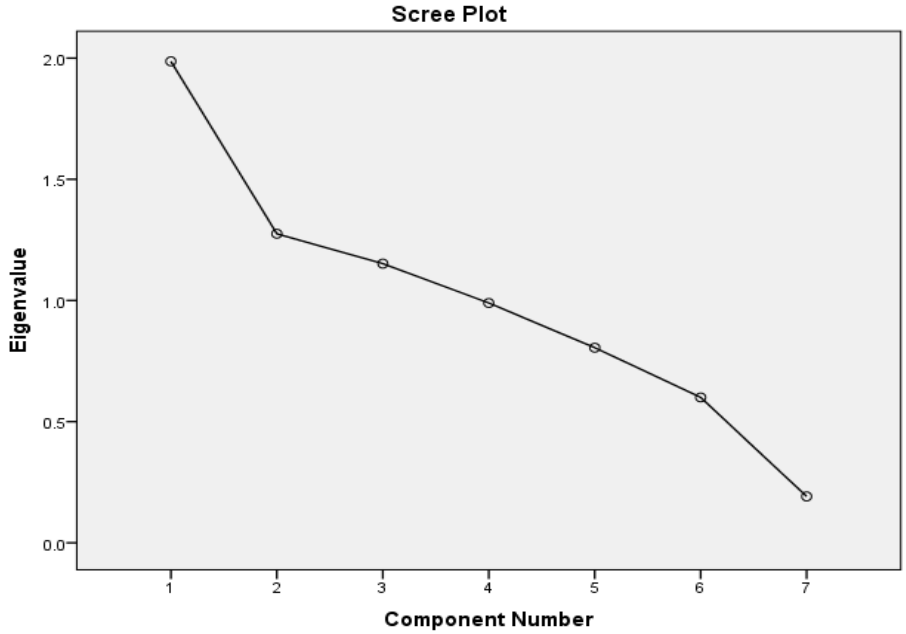


Figure 4.3 Scree plot for strong governance

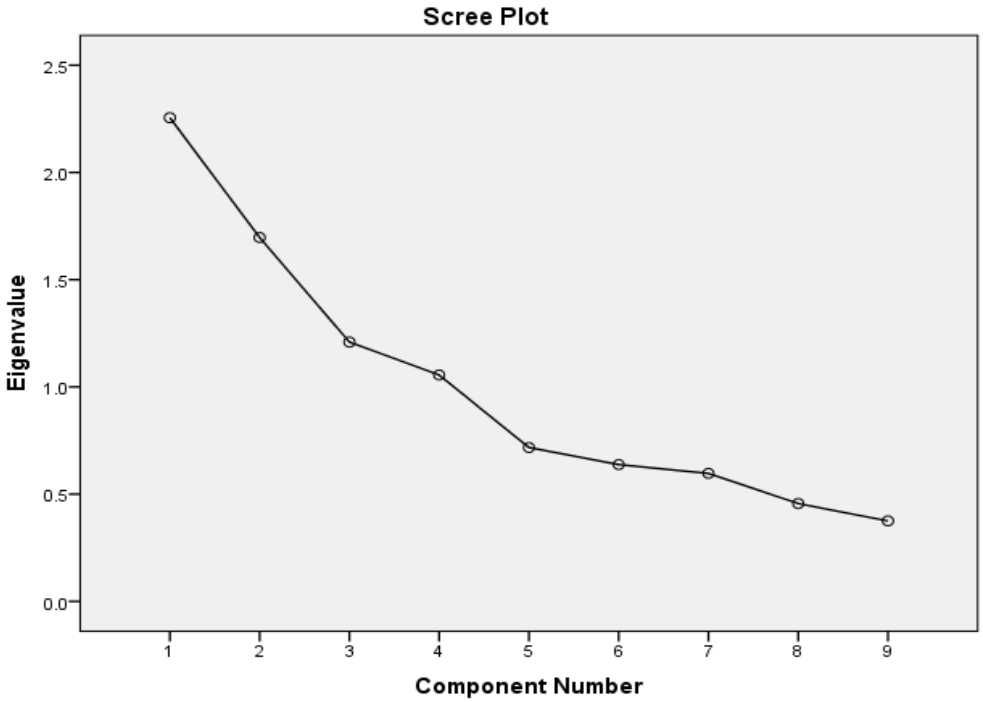


Figure 4.4 Scree plot for explicit industry knowledge

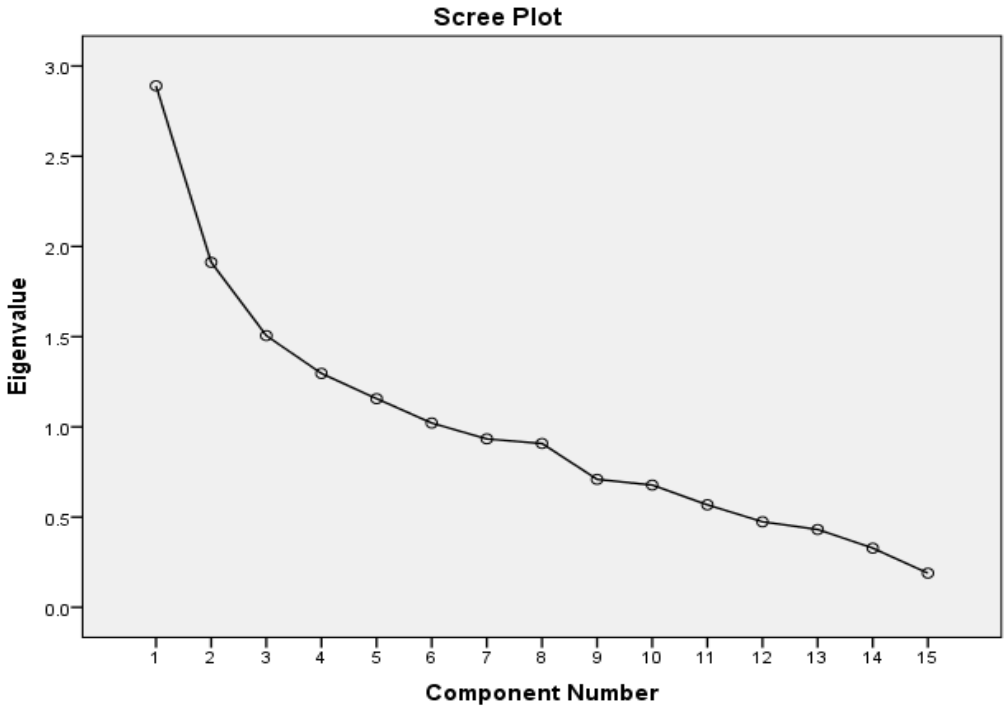


Figure 4.5 Scree plot for adaptability to change

underlying variables capturing qualifications, experience, education, and leadership. As Table 4.8 shows, each factor had at least two strong component loadings.

The adaptive dimension includes sixteen proxy variables (ADP). The scree plot (see Figure 4.5) identified that these variables reduced to three factors labelled 'Reputation,' 'Adaptability,' and 'Leverage Resources.' The last mentioned referred to maximising non-monetary resources, the heaviest loadings being Global Presence, acquiring Strategic Human Capital, and the strategic implementation of Information Technology. The reputation variables all loaded on the Reputation factor and the variables relating to product, customer, technology, and people adaptability all loaded on the Adaptability factor.

The principle components analysis reduced the fifty-three variables across the five dimensions into thirteen reduced measures. These comprise the eleven factors shown in Table 4.8, plus the two innovation variables that capture the innovation dimension. Henceforth, these will be referred to as the thirteen factors, albeit the last two are the captured variables and the other eleven are rotated factors.

Table 4.9 presents regression analyses of the ability of the thirteen factors to predict the four different dependent variables: Model 1 shows short-term abnormal returns (AR1), Model 2 shows long-term abnormal returns (AR3), Model 3 shows short-term return on assets (ROA1), and Model 4 shows long-term return on assets (ROA3). Model 1 has a low goodness of fit (adjusted R^2 of only 12%), and none of the factors nor the industry or size controls statistically significant relationship with one-year post-SEO abnormal. Model 2 demonstrates a much higher goodness of fit (adjusted R^2 of 38%) when using long-term AR as the dependent variable. Leverage, Chair Independence, and Disruptive Technology are significantly positively related while Patents and the control for size (log of total assets) are significantly negatively related to three-year post-SEO abnormal return (at $P < .05$ or lower). In addition, Model 3 also shows a higher goodness of fit (adjusted R^2 of 43%) when using short-term ROA as the dependent variable. The control for size (log of total assets), and the factors Leverage, Reputation, and Adaptability, are significant and positively related to one-year post-SEO ROA while, CEO Education, and CEO Leadership are significant and negatively

related to short-term ROA (P < .10 level). Finally, Model 4 also shows a similar goodness of fit (adjusted R^2 of 43%) using long-term ROAs as the dependent variable. Only three factors, Leverage, Agency, and CEO Leadership, along with the control for size, were significant. Overall, goodness of fit was higher using ROA, rather than abnormal returns model, and for long-term over short-term measures for the dependent variables.

Table 4.9 Thirteen factor predictive model

	Model 1: AR1		Model 2: AR3		Model 3: ROA1		Model 4: ROA3	
	β	t	β	t	β	t	β	t
Intercept		0.203		1.419		-2.913***		-1.148
Indus	0.322	1.497	0.058	0.323	0.326	1.882*	0.155	0.894
Log Total Assets	-0.315	-1.585	-0.764	-4.594***	0.462	2.887***	0.452	2.836***
Leverage	0.191	1.077	0.391	2.636**	0.540	3.789***	0.400	2.811***
Market Valuation	-0.022	-0.158	-0.038	-0.317	-0.058	-0.506	-0.091	-0.797
Chair Independence	0.123	0.911	0.203	1.798*	0.013	0.118	-0.024	-0.220
Agency	-0.121	-0.879	-0.170	-1.474	0.149	1.343	0.221	2.002*
Qualification	-0.120	-0.881	-0.119	-1.042	-0.044	-0.404	-0.014	-0.124
Experience	0.070	0.480	-0.102	-0.832	-0.138	-1.169	-0.120	-1.018
CEO Education	-0.122	-0.856	-0.128	-1.068	-0.294	-2.556**	-0.104	-0.910
CEO Leadership	-0.105	-0.683	0.062	0.478	-0.354	-2.849***	-0.213	-1.720*
Reputation	0.198	1.296	-0.047	-0.368	0.229	1.862*	0.023	0.187
Adaptability	0.231	1.260	-0.106	-0.692	0.271	1.841*	0.110	0.750
Leverage Resources	-0.090	-0.579	-0.133	-1.020	0.071	0.563	-0.028	-0.226
Patents	0.119	0.620	-0.367	-2.281**	0.083	0.539	-0.039	-0.253
Disruptive Technology	0.153	0.991	0.361	2.798***	0.030	0.243	-0.198	-1.596
Adj R Square		0.12		0.38		0.43		0.43
F-Statistic		1.54		3.52***		4.06***		4.09***

4.6.4 Predictive modelling

The second hypothesis of the study is that the five core competencies can feed into a predictive equation capable of predicting post-SEO financial performance in terms of AR, i.e., whether a firm is a cherry or a lemon. There are two ways we could potentially build a predictive model: (1) use the thirteen factors identified above to represent the five core competencies (or underlying dimensions) to estimate a model that predicts future performance; (2) retain all the information in the data and use all fifty-three variables to estimate a model that predicts post-SEO performance. In this study, we take the second approach, and use the exploratory technique stepwise discriminant analysis to estimate

which variables best predict short-term and long-term market performance. That is, the SEO abnormal return both short-term one-year and long-term three-years post-SEO.

We broadly adopt the approach of Ou and Penman (1989) in that we use all the available data and variables to build the model. This means that we do not impose any researcher bias in terms of dimensions or variables. Instead, we let the data direct the analysis with our focus on predictive ability rather than theory testing. We use discriminant analysis rather than logistic regression because the former is more robust with smaller sample sizes. In addition, the resultant discriminant function is more familiar to financial professionals that already use the likes of Altman's Z-score model (readily available in data feeds like Bloomberg). Using discriminant analysis has some potential weaknesses relative to logistic regression where the independent variables are not multivariate normal. It is also acknowledged that different estimation techniques may result in different input variables, parameters, and prediction rates. An accumulating body of neural network research suggests these approaches challenge traditional discriminant analysis and logistic regression (West *et al.* 1997; Teshnizi & Ayatollahi 2015). Nevertheless, stepwise, discriminant analysis serves the purpose of testing out hypotheses to determine whether or not the core competencies can be combined to predict lemons versus cherries. The research objective is not to produce the best model; it is to show that predictive modelling is possible.

The first step in the analysis is to split the potential SEOs into lemons and cherries. The sample is divided into thirds, based initially on the one-year post-SEO abnormal return, then again into thirds based on the three-year returns. We use the two extreme groups for each variable (one and three-year post-SEO abnormal return) to represent the lemons (the bottom third) and cherries (the top third). The middle group is excluded as we want a model that identifies the extremes rather than the middle group. We can also use the middle group to test the estimated model upon. The lemons (bottom third) are coded as 1 and the cherries (top third) are coded as 2 in the discriminant analysis.

Initially, we test the difference between the lemons and cherries on each of the fifty-three independent predictor variables as predictors. The Analysis of variance (ANOVA) (Table 4.10) results show the 'F' statistic to measure the difference between the two groups. A

statistically significant predictor of one-year lemons was a high number of 'please explain' notices from the ASX. The statistically significant predictors of one-year cherries were was the adoption of new technology by transfer or license (PE), the adoption of or creation of a disruptive technology (DRP), and the lodgement and approval of technology patents (PAT).

The strength of their 'F' statistic shows that the quantum of the CEO's salary, the years of experience of the board members, and their high-ranking membership of industry associations are statistically significant predictors of three-year lemons. Predictors of three-year cherries are the quick ratio (QR), the CEO's specific industry experience, the length of the CEO's tenure with the firm (SERV), the percentage of revenue spent on industry-specific training (TRN), the percentage of revenue spent on marketing (MKT), a strategic imperative to acquire effective human capital (THN), the adoption of or creation of a disruptive technology (DRP), and the lodgement and approval of technology patents (PAT).

Table 4.10 ANOVA of proxies for lemons versus cherries (short and long-term)

		1-Year Abnormal Return		3-Year Abnormal Return	
		F	Sig.	F	Sig.
RM	CCC	0.001	0.976	0.937	0.339
	LTE	1.252	0.270	0.996	0.324
	GM	0.865	0.358	2.102	0.155
	RFA	0.900	0.348	0.030	0.863
	SFA	0.193	0.663	0.003	0.959
	STA	2.789	0.103	0.501	0.483
	LTTA	0.002	0.967	0.006	0.941
	DIS	1.036	0.315	0.317	0.577
	MSEO	0.015	0.905	1.086	0.304
	ALC	0.505	0.481	0.038	0.847
	QR	1.043	0.313	2.962	0.093
	DE	0.599	0.443	0.470	0.497
	NM	0.006	0.939	0.614	0.438
	WACC	1.409	0.242	2.202	0.145
	ITO	0.014	0.905	1.487	0.230
	CFA	0.542	0.466	2.189	0.147
	BMR	2.583	0.116	0.618	0.436
	EPS	1.673	0.203	0.101	0.753
	CTP	1.986	0.166	0.361	0.551
	SAL	2.614	0.114	3.853	0.056
SG	SEPRL	0.068	0.796	0.725	0.399
	CIN	0.004	0.952	0.197	0.659
	IND	0.681	0.414	2.248	0.141
	EM	0.022	0.884	0.000	0.990
	PE	3.512	0.068	0.001	0.970
	OWN	0.156	0.695	0.113	0.738
	OPT	0.010	0.921	0.228	0.636
EIK	EDU	1.132	0.294	1.467	0.233
	EXP	1.327	0.256	9.482	0.004
	EDUC	0.046	0.831	0.047	0.830
	EDUR	1.655	0.206	0.241	0.626
	CEO	0.325	0.572	3.494	0.069
	SERV	1.685	0.202	4.821	0.034
	IL	0.010	0.920	0.010	0.920
	TRN	2.739	0.106	7.215	0.010
	INST	0.459	0.502	3.641	0.063
ADP	RG3	0.676	0.416	0.543	0.466
	CHN	2.726	0.106	0.329	0.569
	REP	0.590	0.447	0.253	0.618
	REPC	0.381	0.540	0.076	0.785
	LDR	0.354	0.555	0.114	0.737
	VAL	1.754	0.193	0.065	0.800
	MKT	0.107	0.745	4.539	0.039
	DIL	0.956	0.334	1.041	0.314
	GLBL	1.274	0.266	0.178	0.675
	THN	0.549	0.463	2.861	0.098
	CON	1.859	0.180	0.023	0.880
	TT	5.332	0.026	0.392	0.535
	IT	0.453	0.505	0.188	0.667
	DIV	1.411	0.242	0.329	0.569
	CUS	0.178	0.676	0.016	0.900
INN	PAT	5.049	0.030	3.600	0.065
	DRP	7.509	0.009	2.952	0.093
Log Total Asset		4.333	0.044	17.984	0.000
Industry		1.094	0.302	0.540	0.466

4.5.4.1 Short-term abnormal return predictive model

Table 4.11 reports the discriminant function coefficients from a stepwise discriminant analysis of all fifty-three variables to predict one-year lemon versus cherry categories (top and bottom thirds of one-year post-SEO abnormal return). The resulting discriminant function predicts within sample the Lemons (Group 1, the low short-term AR) and Cherries (Group 2, the short-term AR) with a 74.4% accuracy (see Table 4.12). The predicted score for each firm comprises a constant, in this case a negative, plus the coefficient times the firm specific value of four common underlying variables, the latter metric determining whether the firm will morph as a cherry or a lemon at (t +1). Positive scores are cherries while negative scores are lemons.

Prediction Score *= -3.947 + (0.105 x EPS) + (-0.666 x EDUR) + (1.537 x TT) + (2.147 x DRP)* *[2]*

Where	EPS =	Earnings per share
	EDUR =	CEO's Relevant Tertiary Qualifications
	TT =	Technology transfer
	DRP =	Creation of a disruptive technology

Table 4.11 Discriminant function 1-Year abnormal return cherries versus lemons

	Coefficient		
(Constant)	-3.947		
EPS	0.105		
EDUR	-0.666		
TT	1.537		
DRP	2.147		
Wilks' Lambda	Chi-square	df	Sig.
.633	17.822	4	.001

Table 4.12 Classification results of cherries versus lemons

1-Year Abnormal Return Groups			Predicted Group Membership		Total
			1	2	
Original	Count	1	18	3	21
		2	8	14	22
	%	1	85.7	14.3	100.0
		2	36.4	63.6	100.0

1 = Low 1-Year AR Group
2 = High 1-Year AR Group

Table 4.13 depicts the predicted discriminant score versus the actual group membership of the lemons (coded as 1) and cherries (coded as 2). All of the lemons have a score of less than zero, except for two which have a positive score, implying they are not lemons. A number of the cherries have score that are negative, implying that they are lemons. However, above the value of 1.0 on the discriminant function, all identified cherries are actually cherries, suggesting that this should be the decision rule to apply to the short-term AR predictive model. This is shown visually in Figure 4.6.

The development of these predictive models provides support for H2 that the five core competencies can be combined to predict post-SEO financial performance identifying whether a firm is a cherry or a lemon.

Table 4.13 Predicted score, group versus actual group

	Predicted Score	Predicted Group	Actual Group
Predicted Lemons (1)	-2.245	1	1
	-1.995	1	1
	-1.623	1	1
	-1.570	1	2
	-1.569	1	1
	-1.225	1	1
	-1.058	1	1
	-0.991	1	1
	-0.971	1	2
	-0.936	1	1
	-0.932	1	1
	-0.924	1	1
	-0.919	1	1
	-0.911	1	1
	-0.839	1	1
	-0.409	1	1
	-0.351	1	1
	-0.297	1	1
	-0.293	1	1
	-0.276	1	2
	-0.268	1	2
	-0.263	1	2
	-0.257	1	2
	-0.254	1	2
	-0.104	1	1
	-0.084	1	2
Predicted Cherries (2)	0.114	2	2
	0.416	2	1
	0.583	2	2
	0.598	2	2
	0.604	2	2
	0.613	2	1
	0.617	2	1
	1.217	2	2
	1.230	2	2
	1.302	2	2
	1.309	2	2
	1.415	2	2
	1.873	2	2
	1.884	2	2
	2.298	2	2
	2.742	2	2
	2.747	2	2

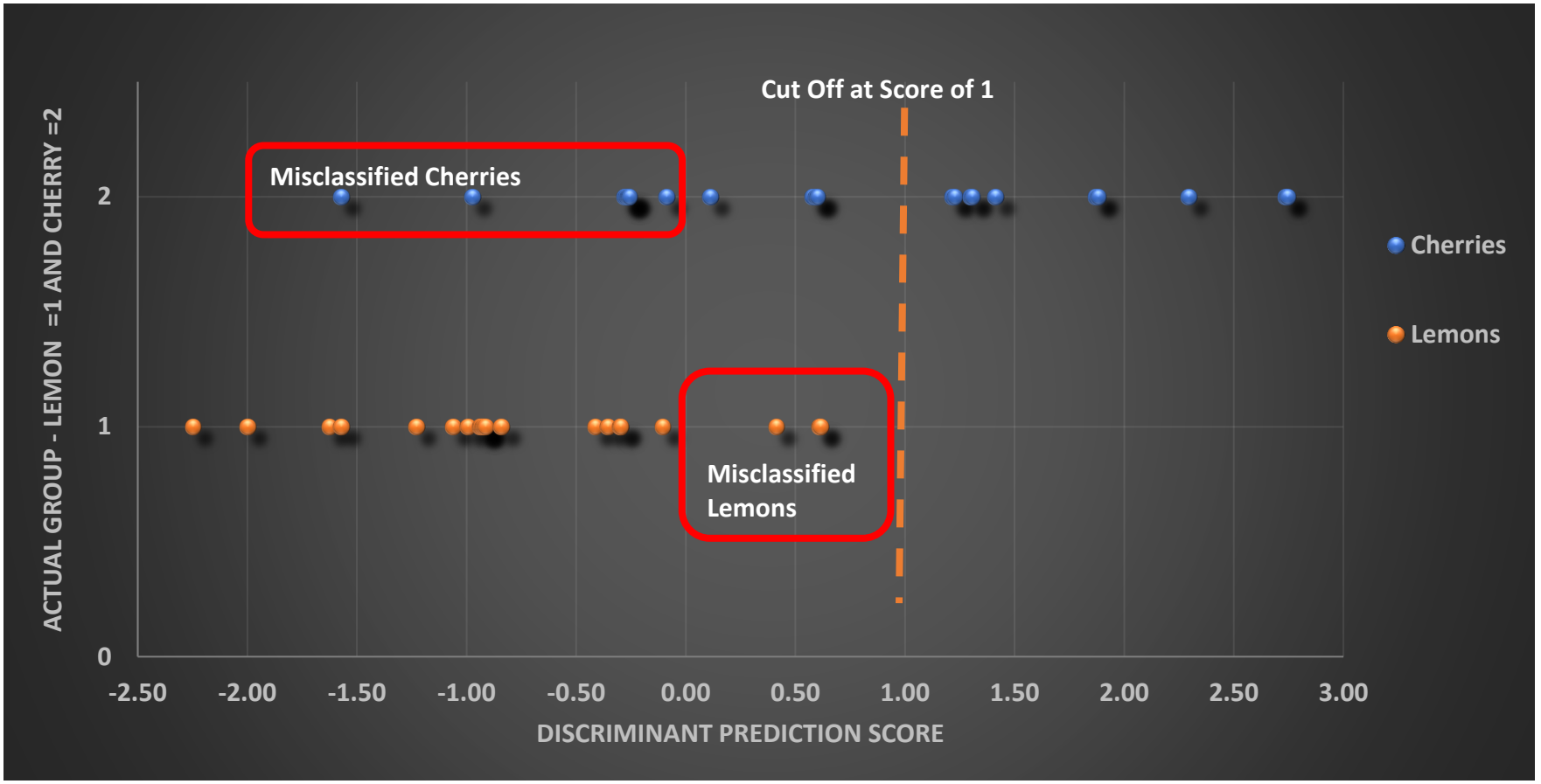


Figure 4.6 Short-term discriminant prediction score for lemons versus cherries

4.6.4.2 Long-term abnormal return predictive model

Table 4.14 reports the Discriminant Function Coefficients from a stepwise discriminant analysis of all fifty-three variables to predict three-year lemon versus cherry categories (top and bottom thirds of three-year post-SEO abnormal return).

Table 4.14 Discriminant function 3-Year abnormal return cherries versus lemons

	Coefficient		
(Constant)	-7.116		
GM	0.033		
WACC	0.133		
EPS	0.071		
OWN	-4.247		
CEO	0.054		
MKT	76.541		
THN	1.986		
Log Total Assets	1.155		
Lambda	Chi-square	df	Sig.
.291	45.674	8	.000

The resulting discriminant function predicts within sample the Lemons (Group 1, the low 3-Year AR) and Cherries (Group 2, the high 3-Year AR) with a 95.2% accuracy (see Table 4.15).

Table 4.15 Classification results to differentiate cherries versus lemons

3-Year Abnormal Return Groups			Predicted Group Membership		Total
			1	2	
Original	Count	1	20	1	21
		2	1	21	22
	%	1	95.2	4.8	100.0
		2	4.5	95.5	100.0

1 = Low 3-Year AR Group
2 = High 3-Year AR Group

The three-year model encompasses seven underlying variables. Pre-SEO earnings per share (EPS) is the only predictor variable common to both short and long-term abnormal return prediction models. Inserting EPS and the other six predictor variables into the model classifies the firms into lemon or cherry categories, but this time the model is structured

with negatives being cherries and positives being lemons. That is, in contrast to the short-term model, a negative coefficient indicates high performance.

Long-term Predictive Score = -7.116 + (0.033 x GM) + (0.133 x WAAC) + (0.071 x EPS) + (-4.247 x OWN) + (0.054 x CEO) + (76.541 x MKT) + (1.986 x THN) + (1.155 x Log Total Assets) [3]

Where	*GM*	*Gross margin ratio*
	WAAC	*Weighted average cost of capital*
	EPS	*Earnings per share*
	OWN	*Percentage of firm owned by directors*
	CEO	*CEO's specific industry experience*
	MKT	*percent of revenue committed to marketing*
	THN	*Acquire strategic human capital*
	TA	*Log of total assets*

The resulting discriminant prediction scores for three-year AR are displayed in Table 4.16. To assist interpretation and comparability with the short-term model, the scores are all multiplied by negative one. The effect is to rescale the scores so that the lemons are the largely negatives (one exception) and the cherries are the positives.

The scores denoting lemons scale up from 3.981 to a maximum of 0.238. The scores identifying cherries scale up from 0.069 to a maximum of 3.061. At a score of less than -0.5 (i.e., between -0.32 and -0.609), all predicted cherries are actually cherries. Figure 4.7 shows that only one lemon had a predicted discriminant score greater than zero (i.e., in the cherry range which is negative for the three-year abnormal return model). Applying the cut-off value of 0.5 would result in no lemons being incorrectly identified as cherries in the model estimation sub-sample.

Table 4.16 Long-term abnormal return predicted score group versus actual group

	Predicted Score	Predicted Group	Actual Group
Predicted Lemons (1)	-3.981	1	1
	-2.729	1	1
	-2.470	1	1
	-2.460	1	1
	-2.347	1	1
	-2.198	1	1
	-2.197	1	1
	-2.120	1	1
	-1.610	1	1
	-1.538	1	1
	-1.537	1	1
	-1.447	1	1
	-1.242	1	1
	-1.209	1	1
	-1.196	1	1
	-0.816	1	1
	-0.673	1	1
	-0.624	1	1
	-0.449	1	1
	-0.287	1	2
	-0.238	1	1
	0.069	2	2
	0.086	2	2
	0.307	2	2
	0.320	2	1
Predicted Cherries (2)	0.609	2	2
	0.874	2	2
	0.890	2	2
	0.963	2	2
	1.055	2	2
	1.352	2	2
	1.396	2	2
	1.428	2	2
	1.605	2	2
	1.894	2	2
	1.977	2	2
	2.146	2	2
	2.247	2	2
	2.346	2	2
	2.841	2	2
	2.896	2	2
	3.008	2	2
	3.061	2	2

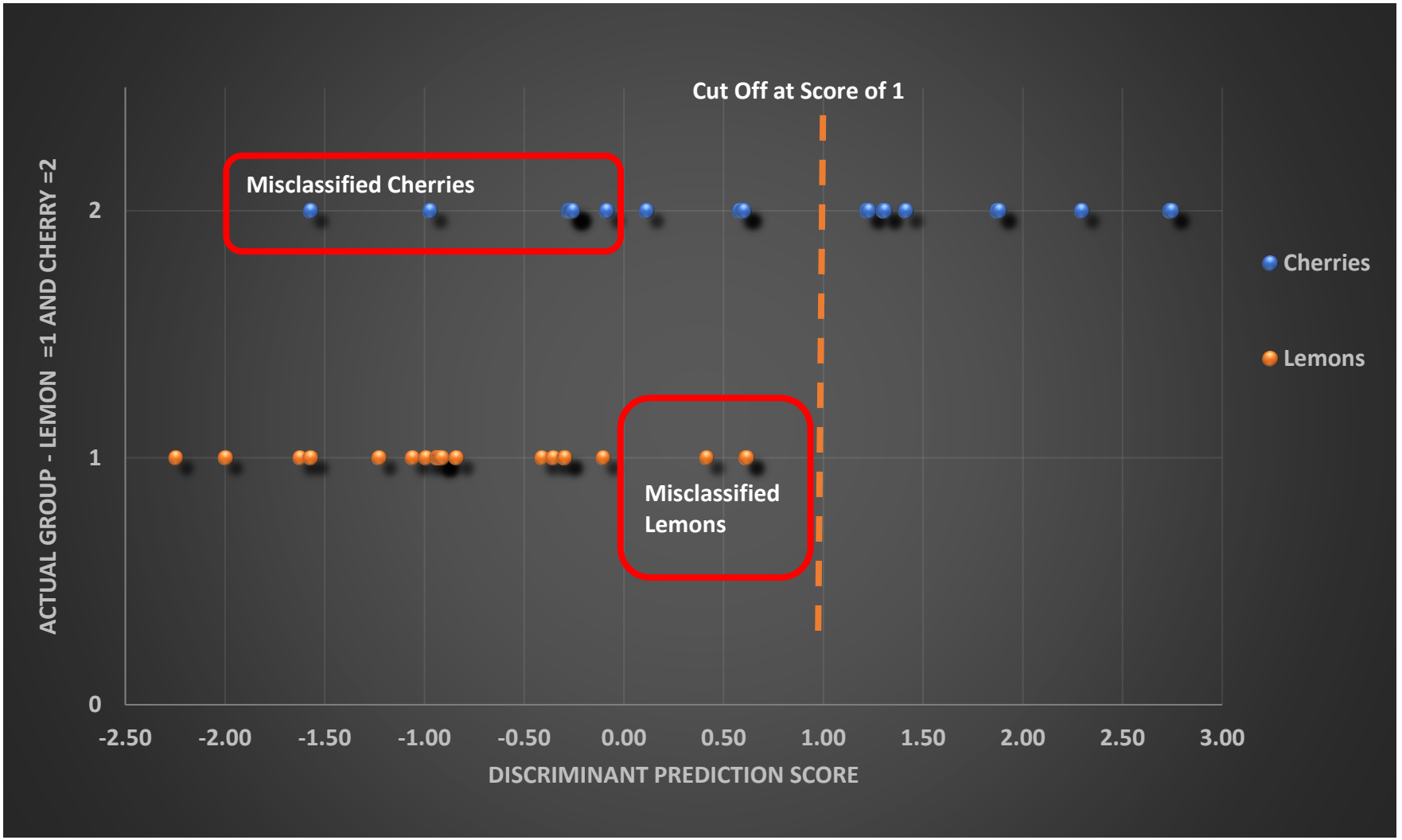


Figure 4.7 Long-term discriminant prediction score for lemons versus cherries

4.7 Discussion and conclusion

Even with a market price for the firm's stock, potential investors in the small-cap SEO market face significant market information asymmetry. The lemons problem is even more pronounced in the small-cap SEO market as there is no coverage by research analysts that helps keep the large public equity markets 'efficient.' Consequently, investors will have to carry out their own analysis on the firm's financial condition and future prospects, based on more limited publicly-available information.

Based on Myers and Majluf (1984), investors may conclude that firms are timing their SEO at a time when the firm is overvalued, and that inside managers and owners have valuable information about their firm's value. Without the assistance from research analysts, investors do not know if a small-cap's stock price reflects all averse non-public information. From the investor side, the costs required for potential investors to collect and assess all of this information would be prohibitively high.

4.7.1 Hypothesis No 1.

We emphasise that Hypothesis H1 was formed from an investor's perspective as distinct from an employees' or customers' perspective. Successful organisational performance from an employee's perspective may have very different connotations from investors. An investor's primary focus is on financial returns. H1 suggested that regardless of how financial performance is measured, it is determined by the metrics of the same core competencies.

Our results do not support this hypothesised commonality of performance determinants. We observed that while the basic inter-item correlation between some of the independent variables is significant, the correlation between the two short-term dependent variables is insignificant. For example, the relationship between a firm's status as an industry leader (IL) and its customer orientation (CUS), is significant, but the relationship between the firms short-term ROA and short-

term ARs is insignificant at 0.039. In short, ROA and ARs are two quite different measures of financial performance, whose determinants have little in common.

We regressed the independent variables of each of the five predictor groups of core competencies against the two classes of dependent variables. The results (see Table 4.5) show that while there are five significant non-accounting based predictors of short-term ROA, the dominant predictors of short-term ROA are nine accounting-based variables. Four of them, the short-term debt to total assets ratio, the number of recent SEOs, the book-to-market ratio, and the gross margin ratio, are significantly but negatively correlated to short-term ROA. The remaining accounting-based variables (discount offered on shares at SEO, the debt/equity ratio, EBIT as a percentage of revenue, and the ratio of free cash-flow to assets) are positively and significantly correlated with short-term ROA.

Our finding that gross margin is negatively correlated to ROA may appear counter-intuitive, but the phenomenon can be explained by the tendency of industries under intense competitive pressure to discount prices to increase sales (thus lower the gross margin in percentage terms). The increased sales may translate to a greater utilisation of assets and an over-recovery of overheads that increases ROA.

In spite of their ability to predict short-term ROA, accounting-based predictor variables appear ineffective as determinants of long-term ROA, being replaced by two adaptive variables: technology transfer and the diversification of products. With the exception of the CEO's salary, no accounting-based variables are significant predictors of short-term AR, but three of them, the debt/equity ratio, WAAC, and free cash flow to assets, were significant predictors of long-term ARs. A closer examination of the correlation of the free cash flow to assets in each case offers a plausible explanation of this anomaly. The free cash flow to total assets (CFA) is a significant and positively correlated predictor of both short and long-term ROA (see Tables 4.5 and 4.6). This is in line with the expectation that as CFA increases, it will be manifested by an improved ROA. However, substituting ARs for ROA, we find that the CFA is also a significant negatively correlated predictor of long-term ARs, i.e., a low CFA heralds a higher long-term AR.

Lam *et al.* (2015) show that a low CFA (manifested as a low cash holding) is positively correlated with future ARs, as the value of the firm increases over time from an initial undervaluation. Lam *et al.* (2015) advance a behavioural explanation for the initial undervaluation of the firm, saying that it stems from an investor's perception of 'real illiquidity associated with low cash holdings.'

The results (see Table 4.3) also show that none of the traditional accounting-based predictors of short-term ROA are predictors of short-term ARs. A strong governance variable, 'please explain' requests from the ASX are a significant negatively related predictor of short-term ARs. Three industry-explicit knowledge proxies, the CEO's tertiary qualifications, the status of the firm as an industry leader, and the percentage of revenue allocated to industry training, are significantly and positively correlated predictors of short-term ARs. Three years ex-ante the SEO revenue growth and technology transfer are significant adaptive group predictors of short-term ARs.

Only one significant predictor of short-term ARs, the CEO's tertiary education qualifications, carried through as a predictor of long-term ARs. Perversely, a firm's good reputation and the number of patents it had lodged were significantly but negatively correlated with long-term ARs. We surmise that three years post-SEO, the firm's reputation at time 't' may be of little consequence if its patents proved difficult to commercialise. The CEO's industry-specific education is also a significant but negatively correlated predictor of ARs. It may be linked to the positive significant correlation of disruptive technology with long-term ARs. As technology advances at an exponential rate, an older technical education may prove unable to cope with the latest developments.

When the fifty-three variables are factor analysed into eleven factors allocated over the five core competency dimensions (see Table 7), we find that nine of the eleven factors are non-accounting based. Some of these nine factors are qualitative in construct, e.g., reputation, but we viewed them as predictors of ARs in the sense that ARs have a behavioural or qualitative input (Levy & Levy 2011). In essence, H1 was not supported for short-term ARs. H1 was a null hypothesis for

short-term ARs, as none of the thirteen factors has a statistically significant relationship with this independent variable (See Table 4.8). However, when the thirteen (eleven factors plus two variables) factors were regressed against long-term ARs, using log of Total Assets as a control for size, Table 9 shows that the log of total assets, leverage, chair independence, and disruptive technology are significantly and positively related to the dependent variable. This result supports H1 for long-term ARs.

When we regress the thirteen factors against short-term ROA after controlling for size (see Table 4.10), we find that five factors, leverage, reputation, CEO education, CEO leadership, and adaptability are significantly and positively related to short-term ROAs. This wider spread of factors supports the tenets of H1. Regression of the thirteen factors against long-term ROA (see Table 4.11) also showed support for H1. Again, the log of total assets emerged as significant control for size and leverage, agency, and CEO Leadership were positively and significantly related to the long-term ROA. This result supports both our previous regressions, showing that accounting-based metrics (the Leverage factor) are significant predictors of short and long-term ROA.

4.7.2 Hypothesis No 2.

Our second hypothesis states that the metrics of each of the five groups of competencies can be combined in a predictive equation capable of predicting the short and long-term ARs. The quantum of the predictive score will assist an investor to identify his targeted investment as either a cherry or a lemon. We employed stepwise discriminant analysis for this task rather than logistic regression since the former is considered to be more robust with relatively small sample sizes, as is the case with Press and Wilson (1978). The independent variables were ex-post-SEO short and long-term ARs. We devised two extreme groups for each variable, the cherries represented by the top one third scores and the lemons by the bottom one third scores. We excluded middle-ranking scores, reasoning that investors were only interested in identifying cherries or lemons.

Our stepwise discriminant analysis of all fifty-three variables produced discriminant coefficients where (see Table 4.10) the lemons (predicted low short-term ARs) were termed Group 1, and the cherries (predicted high short-term ARs) were termed Group 2. The predicted score for each firm's short-term AR comprises a constant, in this case a negative, plus the coefficient times the firm specific value of four common underlying variables. The latter metric determines whether the firm will morph into a cherry or a lemon at (t + 1). Positive prediction scores are cherries and negative scores are lemons. The four variables generating each predictive score are earnings per share, the CEO's relevant tertiary education, technology transfer, and the adoption of a disruptive technology. The predictive function (see Equation 2) predicts (within sample) lemons (Group 1, the low short-term ARs) and cherries (Group 2, the short-term ARs) with 74.4% accuracy. We apply the same discriminate methodology to derive the predictive scores for long-term ARs (see Table 4.14). The resulting long-term discriminant scores for the sample predict the lemons (Group 1, the low long-term ARs) and cherries (Group 2, the high long-term ARs) with a 95.3% accuracy (see Table 4.15). A predictive model (see Equation [3]) yielding a 95.3% accuracy strongly supports H2.

The scores produced by the predictive models are useful to investors as a ranking tool to identify which firms are more likely to be lemons or cherries or somewhere in between. The important question is whether or not the model can be used to formulate a trading strategy, and what are the potential economic returns from the strategy. To investigate this, we computed the long run discriminant score for all sixty-three sample firm SEOs based on Equation 3. Table 4.17 presents the minimum, maximum, and average three-year AR for each partition of the sample.

Table 4.17: Comparing returns for lemons, cherries, and middle group

Actual Group	Min Return	Max Return	Average Return
High AR3 Group	72.3%	743.5%	247.0%
Middle AR3 Group	-34.1%	53.7%	-2.4%
Low AR3 Group	-111.6%	-34.7%	-67.8%
Hedge Porfolio*			314.8%

In interpreting the results in Table 4.17, it should be noted that these are abnormal returns. That is, the percentage change in the price for the stock over the holding period less the percentage change in the small-cap index over the same period. Hence it is possible for a company to have a negative return in a period where the market has a positive return and as a result the abnormal return, the difference between the two, is then more than negative 100 percent. For example, Case 8 in the data, the company return for 3 years is -91.9%. The return on the SPAXEC index for the same period is 19.7%. So the abnormal return (company return less the index return) is -111.6%.

The sample is partitioned into the High and Low AR3 group, which are the top and bottom third of the SEO sample based on three-year AR, and are the extreme groups used to estimate the discriminant function. The Middle AR3 group are the SEOs that were excluded from the estimation. Table 4.17 shows that the average return for the top third of SEOs was 247% over the three-year post-SEO holding period. Whereas the lemons, the low AR3 group, lost on average 67.8%. The Middle AR3 group on average just about broke even with a negative 2.4% abnormal. A hedge portfolio of investing in the High AR3 group and selling short the Low AR3 group results in an average abnormal return of 314.8%.

But this investment strategy presupposes investors know the group membership. If investors simply followed the ranking of the prediction index and bought predicted cherries (negative scores) and short sold lemons (positive prediction scores), then the return would be lower due to the misclassified firms. When we applied this approach, the full sample of sixty-three SEOs the average abnormal return using only the prediction score classification (not post-performance

actual classification) is 205.1%. While this is less than the hedge portfolio, it is still a considerable return and comprises 170.3% return from the predicted cherries and a short-sell return of 34.8 % from the lemons.

The wealth impact of the prediction index can also be demonstrated by focusing on the middle group of SEOs. If investors naively applied the classifications index, whereby they invest in negative prediction scores and sell short positive prediction scores for the twenty SEOs that were in the middle group, then they will have a pattern of gains and losses and missed gains and losses averted that make up the average 2.4% loss for the middle companies. Table 4.18 summarises the pattern of returns for the middle third of the sample where investment decision is based on the classification index prediction.

Table 4.18. Classification index versus actual long-term AR of middle third

	Loss Averted	Gain	Loss	Gain Missed	Total
	Index Lemon	Index Cherry	Index Cherry	Index Lemon	
Avoid LOSS on Lemon	7				7
GAIN on Cherry		1			1
LOSS on Lemon			7		7
Miss GAIN on Cherry				5	5
Return Gain (Loss) if Follow B-Index	15.1%	32.0%	-21.3%	-34.8%	-2.4%

As the index only classifies eight of the twenty middle SEOs correctly (i.e. seven predicted lemons are lemons and one predicted cherry is a cherry), and the rest are the opposite of the predictions, we get four different payoff cells. Selling short the lemons produces a gain of 15.1%, assuming an equally weighted investment. Selling short the five predicted lemons that are actually cherries produces a loss (missed gain) of 34.8%. Buying all the predicted cherries produces again only one actual cherry of 32%, but also a loss of seven actual lemons. Hence, applying the index to all the middle firms almost breaks even as an average abnormal return. In summary, irrespective of how

the classification index is applied, there is evidence that investors can earn an abnormal return from employing investment strategies based on the index predictions.

Although our study incorporated fifty-three distinct variables, investors need only focus on the handful of those factors (total assets, leverage [including cost of capital], chair independence, patents, and disruptive technologies) that were significant in determining long-term abnormal returns. This study also helps clarify the complex contribution of financial ratios and core competency attributes in determining future performance.

4.8 Conclusion

The results showed a significant correlation between the predictive ability of financial statement metrics and one independent variable, short-term ROA. The resource maximisation group (RM) was the dominant group of core competency variables able to predict a firm's short-term ROA. This group contained basic accounting measures of performance. However, the ability of the same group of variables to predict long-term ROA lapsed to the point of insignificance.

Virtually none of the independent variables that demonstrated an ability to predict short or long-term ROAs were significant AR predictors. However, the variables that could predict AR's were spread more evenly across the five competency groups. Curiously, a higher number of independent variables were able to predict long-term ARs than the number able to predict short-term ARs. Furthermore, few of the variables able to predict short-term ARs were replicated in the increased number of variables that could predict long-term ARs. We were unable to conceive an empirical explanation for these anomalies, especially as all the relevant proxies were derived with strong literature support.

Three variables, the board's explicit industry knowledge, the CEO's tertiary qualifications, and the reputation of the board as an industry leader were able to predict short-term post-SEO ARs with 74.4% accuracy. Four variables, the CEO's tertiary qualifications, EPS, technology transfer and the

adoption of disruptive technology were able to predict long-term post-SEO ARs with 95.3%. Surprisingly, two key predictors of short-term ARs, a firm's reputation, and the number of patents lodged were significantly but negatively correlated with long-term ARs.

The inability of patent lodgements to predict long-term ARs may be partially explained by the need to commercialise a patent before it adds to tangible corporate value. The inability of a firm's reputation to advance long-term ARs may lay in the contention that a firm's reputation may not be consistent, i.e., it is only as good as its latest success or failure (Schürmann 2006).

In a more generalised context, we are unable to explain why so few of the organisation core competencies were able to predict abnormal returns, as their relevant proxies were derived with strong literature support.

H1 was not supported: no commonality existed between predictor variables that could predict differing measures of financial performance. Rather, it appears that effective predictor variables cluster to specific measures of financial performance.

A more normative approach may shed light on the anomalies described above. By normative, we do not mean the 'rational' profit maximising behaviour that underpins traditional economic equilibrium theory. Subrahmanyam (2010) reported that empirical support for the descriptor normative in this sense is 'quite limited.' Rather, we mean 'normative' theories grounded in behavioural finance, such as prospect theory.

For example, drilling down through our database to an individual case, we suggest that behavioural finance narrative may be able to link the linear sequence of waning ARs generated by an overly optimistic expectation returns from patents, to the strengthening expectations of ARs stemming from an unconnected disruptive technology.

We conclude that our results strongly support H2. Our short-term ARs predictive equation, based on a constant plus a series of discriminative coefficient weighted variable metrics aligned,

classified cherries and lemons with 74.4% accuracy. Our long-term AR predictive equation, utilising the same stepwise discriminant analysis on a different but more extensive set of variables, classified cherries and lemons with 95.3% accuracy.

Lastly, we suggest that our AR predictive equations may have an applied application and could be enhanced by a narrower and tighter grading of the relevant non-parametric independent variables.

This study will assist investors in mitigating information asymmetry to predict cherries versus lemons small-cap SEOs based on a set of organisational core competencies. Since all information was obtained from public sources, investors can use this model to screen potential investment opportunities. If investors (users) focus on the top and bottom third of the ranked investments with an appropriate trading strategy, buying the cherries and shorting the lemons, this will achieve a superior abnormal return over three years post-SEO. No previous research has demonstrated this predictive ability or trading potential.

Chapter 5: Summary Thesis Conclusion & Future Directions

5.1 Motivations

Our motivations for this multi-faceted research are:

- To enable small firms, both listed and unlisted, to signal their quality to identifiable cohorts of professional equity investors, assuming that improved access to funding will assist in lifting their productivity and creating employment opportunities.
- To provide investors with a viable mechanism to assess the soundness of the financial performance projections of small-firm equity investments.
- To assist policymakers in legislating for new liquid sources of small-firm equity capital funding, risk mitigated by stringent disclosure obligations.

We linked the above aims in a comprehensive research paradigm, focusing not just into the demand for small-scale equity capital, but on the causal factors determining the flow of equity investment. We investigated three specific supply sources, the NSX, smaller more agile PE firms, and small cap SEOs on the ASX.

5.2 Small-scale private equity: demand versus supply

We found that involuntary information asymmetry made compelling HGF investments well-nigh invisible to professional private equity firms. Similarly, small firms actively seeking equity partners were unaware of the existence of small-scale professional private equity firms.

Our interviews revealed that the core motivation of small private equity firms centres on high-growth returns and a five-year exit plan. We find these small private equity firms do not advertise themselves in the aggressive manner that characterises a bank's modus operandi. We postulate that this failure to publicise their services stems from limited investment funds allied to a strong latent demand.

The growth objective is achieved by a rigid screening criteria that insists on unequivocable evidence the investment target has a visionary management team in place. The PE firm interviewees emphasised that they were not management recruitment firms; the management team must have 'skin in the game.'

The management team must also exhibit outstanding organisational core competencies that enable them to act unilaterally, as the PE firms themselves preferred to limit their operational involvement to generalised top-down strategic advice. Generic SMEs are a non sequitur with small PE firms, as only the highest performance HGFs, characterised by exceptional management talent, have any chance of meeting their formidable investment criteria. PE firm interviewees

advised that the number of targeted HGFs that actually met their investment criteria was minuscule.

The dictates of economy of scale and agency costs are a further hurdle to small HGFs seeking professional equity funding. A minimum investment amount is required to justify the high level of agency costs. Most of the smaller PE firms sought to make minimum equity investments (circa $5 million), a far higher amount than most HGFs could justify.

To the best of our knowledge, the extant literature does not address the profit maximising reality, as distinct from the valuation theory of small equity acquisitions. Our practitioner evidence suggests that, even if an HGF meets the PE firm's stringent investment criteria, the equity position is likely to be taken on terms debilitating to the acquiree.

The demand for SSPE was considerably higher than expected, suggesting that contemporary academic reliance on pecking order theory may not apply to small firms. More than 35% of subject HGFs and 18% of subject SMEs who qualified for bank originated debt funding actually preferred equity funding. The increased demand for SSPE was partially predicated on the utility of strategic management guidance from the private equity investor and the prospect of ongoing funding.

The difficulty in accessing data on smaller firms seeking equity funding was a retardant to our research, as was the difficulty of obtaining interviews with the small number of private equity firms operating in this market. Even when an interview with the latter was finally granted, most interviewees were reticent to discuss their modus operandi in quantitative detail. This reticence may help explain the comparative dearth of literature on the machinations of small-scale private equity.

5.3 Small public listings

This paper focused primarily on the dehabilitating effect of information asymmetry on small-scale equity raisings. Despite the large body of literature devoted to IPOs, there are very few studies focused on the performance of secondary exchanges (Rosseau 2007). No study had yet examined the NSX's effectiveness in facilitating Australian SME access to public equity nor had researchers previously explored the attitude of Australian accountants and lawyers to their clients undertaking an IPO on a secondary exchange. Our published paper filled this gap.

We found that extreme information asymmetry affected relations between the NSX and its potential SME clientele. The NSX's primary function as an equity capital-raising bourse was unknown to its SME target market and that market's primary advisers. As a consequence of this information asymmetry, SME owners and their trusted advisors, including lawyers, accountants, and business consultants, did not even consider an IPO on the NSX as an exit pathway or source of funding growth.

We discovered that the more knowledgeable institutional funds and HNW investor's were derisive of the NSXs chronic infrastructure flaws (most notably time delayed and large batch trading), and shunned any investment involvement. The result was a dearth of listings accompanied by highly illiquid trading patterns. The NSX's trickle of IPO issuers were forced to source their own underwriting in the absence of the deep pools of institutional funds that characterise its effective offshore counterparts, the AIM and the TSXVE.

5.4 Reducing information asymmetry, the performance determinants of small-cap SEOs

The ability to accurately predict stock market returns is a high echelon risk mitigator. Our paper delivers a unique set of equations able to accurately predict the likelihood of post-SEO abnormal returns. We tested our rudimentary model on companies listed on the S&P/ASX 200 ECI. The model predicted post-SEO one and three-year abnormal returns with impressive accuracy. To the

best of our knowledge, an equation able to predict abnormal returns with a high degree of accuracy would be a first.

The SEO research paradigm involved screening a large body of extant literature and extracting fifty-four potential causal factors of abnormal returns. Each causal factor was allocated to one of five literature sanctioned organisational core competency groups.

The designated five organisational core competency groups were:

1. The ability to optimise market performance from a given quantum of financial resources.
2. The quality of governance emanating from the board.
3. The core management team's industry specific technological qualifications and experience.
4. The ability to detect and quickly adapt to changing customer needs.
5. The ability to innovate to competitive advantage.

Interestingly, none of the host of traditional accounting based predictors of ROA were able to predict short term (one year post-SEO) ARs. We reasoned that the significant drivers of ARs have a non-parametric behavioural input that is not captured by conventional empirical accounting measures.

Of the fifty-four independent variables tested, only three, the board's explicit industry knowledge, the CEO's tertiary qualifications, and the status of the firm as an industry leader, were significantly and positively correlated with short-term abnormal returns. The predictive ability of these three causal factors was such that they predicted short-term post-SEO abnormal returns with 74.4% accuracy.

Contrary to a large extant literature on the positive influence of good governance on financial performance, we found strong governance to be a significant negatively related predictor of short-term ARs. We postulate that a board obsessed with governance protocols is unlikely to be a board focused on the commercial imperative of obtaining a specific industry advantage.

Our equations were able to predict long term (three years post-SEO) with an impressive 95.3% accuracy. The only common predictor variable of both short and long-term ARs was a CEO's tertiary qualifications. Two key predictors of short-term ARs, a firm's reputation, and the number of patents lodged were significantly but negatively correlated with long-term ARs. This anomaly may reflect the need to successfully commercialise a patent before it has long-term tangible value, and that most practitioners are acutely aware that a firm's historical reputation does not guarantee future financial performance.

The three new variables that significantly and positively correlated with long-term ARs included a single accounting measure, Earnings per Share (EPS). The remaining two predictors were a demonstrated ability to quickly implement new technology and the adoption of a disruptive technology (preferably internally gestated).

In summary, we hold that our research materially assists smaller investors to mitigate information asymmetry by providing an applied rather than theoretical mechanism able to positively discern cherries from lemons.

5.5 Overall contribution of the three studies

Collectively, our three papers break new ground in exploring the adverse effects of information asymmetry on the under-researched and policy-neglected smaller end of the equity funding industry. This contribution is important, as the Australian investment market is volatile, especially

at the small end. We contend that with further refinement, the contribution's predictive equation offers a significant commercial application in assisting 'ordinary' retail investors.

For example, the relatively new and fast growing phenomenon of small self-managed super funds (SMSFs) now represent almost one third of Australia's superannuation funds, yet SMSF managers often invest with an information asymmetry-induced ignorance. Their shallow approach compares poorly with the intensely developed analytical models for large-cap firms. Our predictive equations may assist to close this gap.

Lastly, the wide scope of our mixed methods paradigm contrasts markedly with the empirical methodologies that traditionally underpin financial research. We acknowledge that using mixed methods was a bold move, but the departure from convention facilitated the inclusion of important non-parametric data that would not have been captured by conventional empirical methodology.

5.6 Opportunities for future research

Firstly, given the relatively small number of constituents populating the subject S&P/ASX Emerging Companies Index (IEX), an immediate research opportunity exists to verify our two predictive equations against a larger Australian population. We suggest further testing them against the six-hundred ASX-listed small firms that rank below the IEX. The absence of a recognised benchmark index covering these stocks should not be perceived as a barrier, as a customised purpose bench mark index can be derived. A small extant literature suggests elegant but complex modelling techniques able to accomplish this task (Dor *et al.* 2008; Fuller *et al.* 2010). The equations could also be tested on a global small-cap exchange such as the London Stock Exchange's Alternative Investment Market (AIM). AIM is served by an existing benchmark index, The Russell 2000 Index, which covers its 2,000 smallest stocks.

Secondly, our table of predictive variables can be refined and expanded. The non-parametric independent variables can be classified into more precisely defined subsets, abetted by more discriminating measurement techniques. For example, we need to be able to accurately measure a firm's reputation in a manner that can be readily replicated across a subject population. The tenets of the emerging discipline of behavioural finance could be also be employed to expand our litany of non-parametric abnormal return drivers.

Lastly, Australia needs to urgently address the paucity of small-firm equity investors. Compare the deep pool of equity funding available to AIM's IPOs with that available to Australia's floundering small-cap NSX. An opportunity exists to morph segments of this study into a Government Policy paper by quantifying the employment and productivity gains that should flow from improving the availability of SSPE to HGFs. Government deregulation of this sector in the US has improved the supply of smaller scale Private Equity funding to the extent that the volume of small IPOs has steadily declined over the last decade (Ewens & Farre-Mensa 2018).

References

Abiden, S., Reddy, K., Chen, L., 2012. Determinants of ownership structure and performance of seasoned equity offerings. International Journal of Management Finance 8, 304-331

Abosede, A.J., Oseni, J.E., 2011. Theoretical analysis of firm and market-specific proxies of information asymmetry on equity prices in stock markets. Australian Journal of Business and Management Research 1, 1-13

Abuzarour, B., 2004. The Effect of Infrequent Trading on Market Efficiency: The Case of Middle East Stock Markets. In: 12th Multinational Finance Society Conference, 2005 Campus DoBAU (Ed.), Rio Patras, Greece

Adams, R., Bessant, J., Phelps, R., 2006. Innovation management measurement: A review. International Journal of Management Reviews 8, 21-47

Agha, S., Alrubaiee, L., Jamhour, M., 2012. Effect of core competence on competitive advantage and organizational performance. International Journal of Business and Management 7, 192-204

Agrawal, P., Tarca, A., Wee, W., 2010. Market reaction to intended use of proceeds disclosure: Evidence from Australian SEOs. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1663474, 2-30

Akerlof, G.A., 1970. The market for "lemons": Quality uncertainty and the market mechanism. The Quarterly Journal of Economics 84, 488-500

Al-Mubarak, M.M.S., 2016. Challenges of going global for SMES. International Journal of Innovation and Knowledge Management in the Middle East and North Africa 5

Antoniou, A., Ergul, N., Holmes, P., 2002. Market Efficiency, Thin Trading and Non-Linear Behaviour: Evidence from an Emerging Market. European Financial Management 3, 175-190

Anyadike-Danes, M., Bonner, K., Hart, M., Mason, C., 2009. Measuring business growth: high growth firms and their contribution to employment in the UK.

Arthur, S.J., Hisrich, R.D., Cabrera, Á., 2012. The importance of education in the entrepreneurial process: a world view. Journal of Small Business and Enterprise Development 19, 500-514

Asem, E., Chung, J., Cui, X., Tian, G.Y., 2010. Liquidity, investor sentiment and price discount of SEOs in Australia. Foster D (Ed.), pp. 1-45. University of NSW, Australia

ASX, 2014. Listing Requirements. URL www.asx.com.au/listings/listing-capital-raising/listing

ASX, 2015. ASX Corporate Governance Principles. ASX (Ed.), Melbourne

Autore, D., Bray, D.E., Peterson, D.R., 2009. Intended use of proceeds and the long-run performance of seasoned equity issuers. Journal of Corporate Finance 15, 358-367

Baker, M., Wurgler, J., 2007. Investor sentiment in the stock market. Journal of Economic Perspectives 21, 129-151

Barney, J., 1991. Firm resources and sustained competitive advantage. Journal of Management 17, 99-119

Baruch, Y., Bell, M.P., Gray, D., 2005. Generalist and Specialist Graduate Business Degrees: Tangible and Intangible Value. Journal of Vocational Behavior 67, 51-68

Bausch, A., Pils, F., 2009. Product diversification strategy and financial performance: meta-analytic evidence on causality and construct multidimensionality. Review of Managerial Science 3, 157-190

Bayless, M., Jay, N.R., 2013. What motivates seasoned equity offerings? Evidence from the use of issue. Managerial Finance: Patrington 39, 251-271

Becchetti, L., Trovato, G., 2002. The determinants of growth for small and meduim sized firms. The role of the availability of external finance. Small Business Economics 19, 291

Beck, T., Demirguc-Kunt, A., 2006. Small and medium-size enterprises: Access to finance as a growth constraint. Journal of Banking & Finance 30, 2931-2943

Benito-Osorio, D., Luis Ángel, G.-M., José Ángel, Z.-V., 2012. Four decades of research on product diversification: a literature review. Management Decision 50, 325-344

Berger, A., Udell, G., 1998. The economics os small business finance: The roles of priavte equity and debt markets in the finacial growth cycle. Journal of Banking and Finance 22, 613-673

Berger, A.N., Klapper, L.F., Udell, G.F., 2001. The ability of banks to lend to inforamtionally opaque small businesses. Journal of Banking and Finance 25, 2127-2167

Bertoni, F., Ferrer, M.A., Martí, J., 2013. The different roles played by venture capital and private equity investors on the investment activity of their portfolio firms. Small Business Economics 40, 607-633

Bhandari, L.C., 1988. Debt/Equity Ratio And Expected Common Stock Returns: Empiri. The Journal of Finance 43, 507

Bhaumik, P.K., Chakrabarti, A.K., Makinen, S., 2009. Technology development in China and India: A comparative evaluation. Journal of Indian Business Research 1, 213-237

Bilgihan, A., Wang, Y., 2016. Technology induced competitive advantage: a case of US lodging industry. Journal of Hospitality and Tourism Technology 7, 37-59

Bolek, M., 2014. RETURN ON CURRENT ASSETS, WORKING CAPITAL AND REQUIRED RATE OF RETURN ON EQUITY. e-Finanse 10, 1-10

Booth, J.R., Smith, R.L., 1986. Capital raising, underwriting and the certification hypothesis. Journal of Financial Economics 15, 261-281

Bosch, H., 1995. Corporate Practices and Conduct. FT Pitman, Melbourne.

Bowen, R.M., Chen, X., Cheng, Q., 2008. Analyst coverage and the cost of raising equity capital: Evidence from underpricing of Seasoned Equity Offerings. Contemporary Accounting Research 25, 657-699

Bower, J.L., Christensen, C.M., 1995. Disruptive technologies: Catching the wave. Harvard Business Review 73, 43-53

Bozec, Y., Bozec, R., 2010. Overall Governance and Cost of Capital: Evidence From Canada Using Panel Data. Journal of Global Business Management 6, 1-11

Brau, J.C., Fawcett, S.E., 2006. Initial Public Offerings: An analysis of theory and practice. Journal of Finance LX1, 399-436

Brettel, M., Breuer, W., Espel, P., Abedin, A., 2009. Private Equity for SME: A Behavioural Model of the Demand-Side Perspective.

Breznik, L., Lahovnik, M., 2016. Dynamic capabilities and competitive advantage. In: Management - Journal of Contemporary Management Issues Ljubljana Uo (Ed.), Slovenia

Briozzo, A., Vigier, H., 2009. A demand-side approach to SMES'capital structure: evidence from Argentina. Journal of Business and Entrepreneurship 21, 30

Broude, P.D., 1997. Going public. Journal of Management Consulting 93, 24-29

Brous, P.A., Datar, V., Kini, O., 2001. Is the market optimistic about the future earnings of seasoned equity firms? Journal of Financial and Quantitative Analysis 36, 141-168

Brown, S.J., Warner, J.B., 1980. Measuring security price performance. Journal of financial economics 8, 205-258

Cairns, R.D., 2001. Capacity Choice and the Theory of the Mine. Environmental and Resource Economics 18, 129-148

Calvin, F.W., 1995. Effective small business consultants are focused. Journal of Professional Services Marketing 12, 127

Carpentier, C., l'Her, J.-F., Suret, J.-M., 2012. Seasoned equity offerings by small and medium-sized enterprises. Small Business Economics 38, 449-465

Cattell, R.B., 1966. The scree test for the number of factors. Multivariate behavioral research 1, 245-276

Chemmanur, T.J., Paeglis, I., Simonyan, K., 2010. Management quality and equity issue characteristics: A comparison of SEOs and IPOs. Financial Management Winter 2010, 1601-1642

Chen, C., 2009. A study of the impact of entrepreneurial ability on enterprise competitive advantage. Master. Central South University (People's Republic of China).

Chen, C., Comerton-Forde, C., Gallagher, D.R., Walter, T.S., 2010. Investment manager skill in small-cap equities. Australian Journal of Management 35, 23-49

Chen, H., Duh, R.-r., Chan, H.C., Xiao, J.Z., 2011. Determinants and performance effects of management consultancy adoption in listed Chinese companies. Asian Business & Management 10, 259-286

Chen, Y., Wu, T., 2007. An empirical analysis of core competence for high-tech firms and traditional manufacturers. Journal of Management Development 26, 159-168

Christensen, C.M., 2006. The ongoing process of building a theory of disruption. Journal of Product Innovation Management 23, 39-55

Christensen, C.M., 2015. One more time: What is disruptive innovation? Harvard Business Review 93, 44-51

Cianci, A.M., Kaplan, S.E., 2010. The effect of CEO reputation and explanations for poor performance on investors' judgments about the company's future performance and management. Accounting, Organizations and Society 35, 478

Clarke, J., Dunbar, C., Kable, K.M., 1999. Long-run performance and insider trading in completed and cancelled seasoned equity offerings. Journal of Quantitative Analysis 36, 415-430

Clarke, J., Dunbar, C., Kahle, K., 2004. The Long-Run Performance of Secondary Equity Issues: A Test of the Windows of Opportunity Hypothesis*. The Journal of Business 77, 575-603

Clarkson, P.M., Pathan, S., Tellam, A., 2016. Do private equity target firms exhibit less effectual governance structures? Australian Journal of Management 41, 244-270

Clements, C., Neill, J.D., Wertheim, P., 2015. Multiple directorships, industry relatedness, and corporate governance effectiveness. Corporate Governance 15, 590-606

Coad, A., Broekel, T., 2012. Firm growth and productivity growth: evidence from a panel VAR. Applied Economics 44, 1251-1269

Coad, A., Daunfeldt, S.-O., Johansson, D., Wennberg, K., 2014. Whom do high-growth firms hire? Industrial and Corporate Change 23, 293-327

Coad, A., Guenther, C., 2013. Diversification patterns and survival as firms mature. Small Business Economics 41, 633-649

Cochran, P.L., Wood, R.A., 1984. Corporate Social Responsibility and Financial Performance. The Academy of Management Journal 27, 42-56

Colombo, S., Filippini, L., 2016. Revenue royalties. Journal of Economics 118, 47-76

Comiran, F., Fedyk, T., Ha, J., 2016. Valuation, earnings management, and the underperformance of losss seasoned equity offerings. Journal of Accounting and Finance 16, 50-66

Cosh, A., Duncan, J., Hughes, A., 1998. Investing in Training and Small Firm Growth and Survival: An Empirical Analysis for the UK 1987-97. International Small Business Journal 17, 110-113

Cowden, B.J., Alhorr, H.S., 2013. Disruptive innovation in multinational enterprises. Multi National Business Review 21, 358-371

Dalal, G., 2013. Optimal capital structure. International Journal of Education and Management Studies 3, 233-238

Dananti, K., Cahjono, M.P., Mujiyono, 2017. The Best Indicator of Capital Structure to Predict Firm's Performance. Review of Integrative Business and Economics Research 6, 317-326

Darmadi, S., 2013. Board member's education and firm performance: evidence from a developing economy. International Journal of Commerce and Management. 23, 113-135

Datta, S., Iskendar-Datta, M., 2014. Upper-echolon human capital and compensation: Generalist vs specialist skills. Strategic Management Journal 35, 1853-1866

Daunfeldt, S.-O., Elert, N., Johansson, D., 2014. The economic contribution of high-growth firms: do policy implications depend on the choice of growth indicator? Journal of Industry, Competition and Trade 14, 337-365

DeAngelo, H., DeAngelo, L., Stulz, R.M., 2007. Fundamentals, Market Timing, and Seasoned Equity Offerings. In: Working Paper, pp. 1-23. National Bureau of Economic Research, Cambridge, MA.

Demers, E., Lewellen, K., 2006. The marketing role of IPOs: Evidence from internet stocks. Journal of Financial Economics 68, 413-437

Di Stefano, T.F., 2004. Finding Dollars for Small Cap Companies. In: E-Commerce Times, New York

Dick, B., 2000. Grounded Theory: A Thumbnail Sketch. University SC (Ed.), Lismore

Dor, A.B., Budinger, V., Dynkin, L., Leech, K., 2008. Constructing Peer Benchmarks for Mutual Funds: A Style Analysis-Based Approach. Journal of Portfolio Management 34, 65-77,4,6

Drejer, A., 2000. Organisational learning and competence development. The Learning Organisation;Bradford 7, 206-220

Dwyer, B., Kotey, B., 2016. Identifying high growth firms: Where are we? Journal of Management and Organization 22, 457-475

Eberl, M., Schwaiger, M., 2005. Corporate reputation: disentangling the effects on financial performance. European Journal of Marketing 39, 838-854

Economics, D.A., 2014. Access to capital for small and medium-size enterprises. A report commissioned by NSW Business Chamber. .

Edgar, W.B., Lockwood, C.A., 2012. Understanding, finding, and conceptualizing core competence depth: A framework, guide and generalization for corporate managers and research professionals. Academy of Strategic Mangement Journal 11, 63-89

Edvinsson, L., Malone, M.S., 1997. Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower. Harper Business, N.Y., New York.

Eggers, F., Kraus, S., Hughes, M., 2013. Implications of customer and entrepreneurial orientations for SME growth. Mangement Decision 51, 524-546

Eid, F., 2006. Private equity finance as a growth engine: What it means for emerging markets. Business Economics 41, 7-22

Eikebrokk, T.R., Olsen, D.H., 2009. Training, Competence, and Business Performance: Evidence from E-business in European Small and Medium-Sized Enterprises. International Journal of E-Business Research 5, 92-116

Eisenhardt, K.M., Graebner, M.E., 2007. Theory building from cases: Opportunities and challenges. Academy of Management Journal 50, 25-32

Ellstrand, A.E., Daly, C.M., Johnson, J.M., Dalton, D.R., 1999. Governance by committee: The influence of directors' committee composition on corporate performance. Journal of Business Strategies 16, 67-88

Elsaid, E., 2015. Comparing Outgoing Female CEOs With Prior CEO Experience To Outgoing Female CEOs With No Prior CEO Experience. Journal of Applied Business Research 31, 809-n/a

Engel, D., Stiebale, J., 2014. Private equity, investment and financial constraints: firm-level evidence for France and the United Kingdom. Small Business Economics 43, 197-212

Ewens, M., Farre-Mensa, J., 2018. The Deregulation of Private Equity Markets and the Decline in IPOs.

Fama, E.F., French, K.R., 1992. The cross-section of expected stock returns. the Journal of Finance 47, 427-465

Fatoki, O.O., Smit, A.V.A., 2011. Constraints to credit access by new SMEs in South Africa: A supply-side analysis. African Journal of Business Management 5, 1413

Ferris, S.P., Javakhadze, D., Rajkovic, T., 2017. The international effect of managerial social capital on the cost of equity. Journal of Banking and Finance 74, 69-84

Fetscherin, M., 2015. The CEO branding mix. Journal of Business Strategy 36, 22-28

Ford, G., 2009. Accountants Inspire Confidence in SMEs During Tough Economic Times. In: Social Media News Release. Sage, London

Forsaith, D.M., McMahon, R., 2002. Equity financing patterns amongst Australian manufacturing SMEs. Flinders University of South Australia, School of Commerce.

FRC, 2016. UK Corporate Governance Code. URL https://www.icaew.com/en/library/subject-gateways/corporate-governance/codes-and-reports/uk-corporate-governance-code

Fuller, R.J., Han, B., Tung, Y., 2010. Thinking about Indices and "Passive" versus Active Management. Journal of Portfolio Management 36, 35-47,8,10

Gadenne, D., Sharma, B., 2009. An investigation of the hard and soft quality management factors of Australian SMEs and their association with firm performance. The International Journal of Quality & Reliability Management 26, 865-880

Gallinger, G.W., 1997. The current and quick ratios: Do they stand up to scrutiny? Business Credit 99, 22-23

Gao, N., 2000. The informational content of earnings announcement and stock market behaviour: An investigation of China's stock market. Ph.D. Hong Kong Polytechnic University (Hong Kong).

Gardner, T.M., 2002. In the trenches at the talent wars: Competitive interaction for scarce human resources. Human Resource Management 41, 225-237

Giberson, T.R., C.J., R., M.W., D., J.K., M., K.R., R., M.A., C., 2009. Leadership and organizational culture: Linking CEO characteristics to cultural values. Journal of Business Psychology 24, 123-137

Glaser, B.G., Barney, G., 1998. Doing Grounded Theory: Issues and Discussions. Sociology Press, Mill Valley, California.

Glennon, M., 2017. Opportunities in outperforming small cap stocks.

Gong, J.J., 2011. Examining Shareholder Value Creation over CEO Tenure: A New Approach to Testing Effectiveness of Executive Compensation. Journal of Management Accounting Research 23, 1-28

Gregory, B.T., Rutherford, M.W., Oawald, S., Gardiner, L., 2005. An empirical investigation of the growth cycle theory of small firm financing. Journal of Small Business Management. 434, 382-392

Grossman, S.J., Stiglitz, J.E., 1976. Information and competitive price systems. The American Economic Review 66, 246-253

Hafeez, K., Essmail, A.E., 2007. Evaluating organisation core competencies and associated personal competencies using analytical hierarchy process. Management Research News 30, 530-547

Hamel, G., Prahalad, C.K., 1994. The concept of core competence. Wiley, New York.

Harjoto, M.A., Paglia, J.K., 2011. Funding Continuum for Private Business Owners: Evidence from the Pepperdine Private Capital Markets Project Survey. The Journal of Entrepreneurial Finance 15, 1-22

Hartcher, J., 2005. Australian Accountants Valued Highly by SMEs. CPA Australia, London

Haugen, R.A., Baker, N.L., 1996. Commonality in the determinants of expected stock returns. Journal of Financial Economics 41, 401

Hayes, G., 2003. The Secret to Succession. Australian CPA 73, 22-25

He, D., Yang, D.C., Guan, L., 2010. Earnings management and the performance of seasoned private equity placements: Evidence from Japanese issuers. Managerial Auditing Journal 25, 569-590

Henrekson, M., Johansson, D., 2010. Gazelles as job creators: a survey and interpretation of the evidence. Small Business Economics 35, 227-244

Hitchner, J.R., 2011. Financial Valuation. Wiley Finance, New York.

Hoberg, G., Phillips, G., Prabhala, N., 2014. Product Market Threats, Pay Outs, and Financial Flexibility. Journal of Finance 14

Hoje, J., Yontae, K., 2007. Ethics and disclosure: A study of the financial performance of firms in the seasoned equity offerings market. Journal of Business Ethics 80, 855-878

Holmes, S., Kent, P., 1991. An Empirical Analysis of the Financial Structure of Small and Large Australian Manufacturing Enterprises. Journal of Small Business Finance 1, 141-154

Hosmer, D., Lemeshow, S., Sturdivant, R., 2013. Applied Logistic Regression. John Wiley and Sons, Hoboken, NJ.

Huang, K.F., Dyerson, R., Wu, L.Y., Harindranath, G., 2015a. From temporary competitive advantage to sustainable competitive advantage. British Journal of Management 26, 617-636

Huang, R., Tompkins, J.G., 2010. Corporate governance and investor reactions to seasoned equity offerings. Managerial Finance: Patrington 36, 603-628

Huang, Y., Uchida, K., Zha, D., 2015. Investor sentiment and stock price movements surrounding seasoned equity offerings.

Hyung-Il, J., 2008. WACC as the touchstone performance indicator. International Journal of Contemporary Hospitality Management 20, 700-710

Iddon, C., Hettihewa, S., Wright, C.S., 2013. Junior mining sector capital-raisings: The effect of information asymmetry and uncertainty. Journal of Applied Business and Economics 15, 56-67

Industry, A.V.C., 2013. VC Fact Sheet.

Industry, A.V.C., 2016. Highlights of the Federal Budget, 2016-17. Policy and Advocacy

Investment Industry Regulatory Organization of Canada, 2009. Second Quarter Report. IIROC, Vancouver

Jackson, D., Dutta, S., Nitani, M., 2008. Corporate Governance and informed trading. International Journal of Managerial Finance 4, 295-322

Jayawarna, D., Macpherson, A., Wilson, A., 2007. Training commitment and performance in manufacturing SMEs. Journal of Small Business and Enterprise Development 14, 321-338

Jeanneret, P., 2005. Use of proceeds and long-term performance of French SEO firms. European Financial Management 11, 99-122

Jones, J.N., Cope, J., Kintz, A., 2016. Peering into the Future of Innovation Management. Research Technology Management 59, 49-58

Kanagaretnam, K., Lobo, G.J., Mohammad, E., 2009. Are Stock Options Grants to CEOs of Stagnant Firms Fair and Justified? Journal of Business Ethics 90, 137-155

Keller, T., 1999. Want to be CEO? Try studying engineering [Canada's Corporate Elite survey]. In: National Post Business, p. 13. Southam Inc., Toronto

Kerr, W.R., Lerner, J., Schoar, A., 2010. The consequences of entrepreneurial finance: A regression discontinuity analysis. National Bureau of Economic Research

Kiel, G.C., Nicholson, G.J., 2003. Board composition and corporate performance: how the Australian experience informs contrasting theories of corporate governance. Corporate Governance: An International Review 11, 189-205

Kim, O., Lim, S.C., Park, T., 2009. Measuring the impact of sales on earnings and equity price. Review of Quantitative Finance and Accounting 32, 145-168

King, I., 2010. King Report on Corporate Governance in SA. URL http://www.iodsa.co.za/?kingIII

King, T., Srivastav, A., Williams, J., 2016. What's in an education? Implications of CEO education for bank performance. Journal of Corporate Finance 37, 287

Laamanen, T., 1999. Option nature of company acquisitions motivated by competence acquisition. Small Business Economics 12, 149-168

Laguna, M., Wiechetek, M., Talik, W., 2012. The competence of managers and their business success. Central European Business Review 1, 7-13

Lahti, R.K., 1999. Identifying and integrating individual levels and organisational level core competencies. Journal of Business and Psychology 14, 59-75

Lai, J.-H., Chen, L.-Y., Chen, I.J., 2014. The value of outside director experience to firm strategies: Evidence from joint ventures. Journal of Management and Organization 20, 387-409

Lam, F.Y.E.C., Ma, T., Wang, S., Wei, K.C.J., 2015. On the positive relation between cash holdings and stock returns. In: Working Paper University HKB (Ed.), Hong Kong

Lauterbach, B., 2001. A note on Trading Mechanism and Securities Value: The Analysis of Rejects from Continuous Trade. Journal of Banking and Finance 25, 419-430

Le, S.A., Kroll, M., Walters, B.A., 2012. The Influence of Board Composition on Top Management Team Industry- and Firm-Specific Human Capital in Young IPO Firms. Journal of Managerial Issues 24, 412-432,368

Lee, B., 2014a. The effects of doing better than others and doing better than usual: A longitudinal study of corporate social responsibility. Ph.D. The University of Nebraska - Lincoln.

Lee, J.S., 2010. A research in relating entrepreneurship, marketing capability, innovative capability and sustained competitive advantage. Journal of Business and Economics Research 8, 109-119

Lee, N., 2014. What holds back high-growth firms? Evidence from UK SMEs. Small Business Economics 43, 183-195

Leland, H.E., Pyle, D.H., 1977. Informational Asymetries, Financial Structure, and Financial Intermediation. The Journal of Finance 32, 371-387

Lester, D., Lipinksi, J., 2015. SMEs Acquiring SMEs: A Military Model for Success. Small Business Institute Journal 11, 16-26

Levy, H., Levy, M., 2011. The Small Firm Effect: A Financial Mirage? Journal of Portfolio Management 37, 129-138,14

Lewis, G., Zalan, T., 2012. The Unexplored Dimension of Private Equity: The Case of Prudential Equity Partners. The Journal of Private Equity 15, 40-54

Li, K., Zhao, X., 2008. Asymmetric information and dividend policy. Financial Management 37, 673-694

Li, T., Zaiats, N., 2017. Information environment and earnings management of dual class firms around the world. Journal of Banking and Finance 74, 1-23

Liang, H.C., Jang, W.Y., 2017. News management around equity private placements. Journal of Entrepreurial Finance 19, 1-41

Liao, T.-L., Yu, M.-T., Huang, C.-J., 2011. Independent directors and the long-run performance of IPOs. Journal of Applied Finance and Banking 1, 137

Lilling, M.S., 2006. The Link Between CEO Compensation and Firm Performance: Does Simultaneity Matter? Atlantic Economic Journal 34, 101

Lockett, A., Meuleman, M., Wright, M., 2010. The syndication of private equity. . In: Sons JWa (ed.) Private Equity: Fund Types, Risks and Returns and Regulations. New Jersey.

Lopez-Garcia, P., Puente, S., 2012. What makes a high-growth firm? A dynamic probit analysis using Spanish firm-level data. Small Business Economics 39, 1029-1041

LoPreiato, N.J., 2016. The impact of customer satisfaction on financial performance at Apple, Dell, and Hewlett Parkard. D.B.A. Capella University.

Loughran, T., Ritter, J.R., 1995. The New Issues Puzzle. The Journal of Finance 50, 23-51

LSE, 2014. Market statistics: AIM statistics. London Stock Exchange, London

Mac an Bhaird, C., Lucey, B., 2007. The Determinants of the Capital Structure of SMEs: A Seemingly Unrealted Regression Approach. Dublin TC (Ed.), Dublin City University

Mahsud, R., 2006. Results Based Strategic Leadership: Strategic Leadership and Deteminants of Firm Performance. State University of New York.

Maksimovic, V., Phillips, G., 2002. Do conglomerate firms allocate resources efficiently across industries? Theory and evidence. The Journal of Finance 57, 721-767

Maksimovic, V., Pichler, P., 2001. Technological innovation and initial public offerings. Review of Financial Studies 14, 459-494

Maldonado-Guzmán, G., Pinzón-Castro, S.Y., Morales, C.L., 2017. Corporate Social Responsibility and Firm Reputation in Mexican Small Business. Advances in Management and Applied Economics 7, 29-44

March, J.G., Sutton, R.I., 1997. Organizational Performance as a Dependent Variable. Organizational Science 8, 698-707

Mason, C., Brown, R., 2013. Creating good public policy to support high-growth firms. Small Business Economics 40, 211-225

Mateev, M.P., Anastasov, Y., 2010. DETERMINANTS OF SMALL AND MEDIUM SIZED FAST GROWING ENTERPRISES IN CENTRAL AND EASTERN EUROPE: A PANEL DATA ANALYSIS. Financial Theory and Practice 34, 269-295

Matolcsy, Z., Stokes, D., Wright, A., 2004. DO INDEPENDENT DIRECTORS ADD VALUE? Australian Accounting Review 14, 33-40

Mazzarol, T., 2015. SMEs engagement with e-commerce, e-business and e-marketing. Small Enterprise Research 22, 79-90

McClelland, D.C., 1973. Testing for competence rather than for "intelligence". American Psychologist January 1973, 1-14

McDermott, M.A., 2003. An empirical investigation of core competence and firm performance. University at Albany, State University of New York.

McGuire, J.B., Sundgren, A., Schneeweis, T., 1988. Corporate Social Responsiblity And Firm Financial Performan. Academy of Management Journal 31, 854

McLaughlin, R., Safieddine, A., Vasudevan, G.K., 1996. The operating performance of seasoned equity issuers: Free cash flow and post-issue performance. Financial Management 25, 41-53

Meek, G.K., Rao, R.P., Skousen, C.J., 2007. Evidence on factors affecting the relationship between CEO stock option compensation and earnings management. Review of Accounting & Finance 6, 304

Mehri Akhavi, B., 2015. The effects of financial risks on the relationship between earnings and stock returns. International Journal of Organizational Leadership 4, 154-169

Miller, D., 1991. Stale in the Saddle: CEO Tenure and the Match Between Organization and Environment. Management Science 37, 34

Ming-Chin, C., Shu-Ju, C., Hwang, Y., 2005. An empirical investigation of the relationship between intellectual capital and firms' market value and financial performance. Journal of Intellectual Capital 6, 159-176

Mizik, N., Jacobson, R., 2007. Myoptic Marketing Management: Evidence of the Phenomenon and Its Long-Term Performance Cosequences in the SEO Context. Marketing Science 26, 361-379

Mole, K., 2002. Business Advisors Impact on SMEs: An agency theory approach. International Small Business Journal 20, 139-162

Mulgrew, M., Lynn, T., Rice, S., 2014. Is director independence merely a box ticking exercise? A study of independence determinations in Irish listed companies. Corporate Governance 14, 141-161

Muller, V.O., Ineciu, I.A., Bonaci, C.G., Filip, C.I., 2014. Board characteristics best practice and financial performance. Evidence from the European capital market. Amfiteatru Economic 16, 673-683

Myers, S.C., 1984. The capital structure puzzle. The Journal of Finance 39, 574-592

Myers, S.C., Majluf, N.S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. Journal of Financial Economics 13, 187-221

NAB, 2017. Part 1: Moments that matter-Undestanding Australian SMEs. In: Business Research and Insights

Nagy, D., Schuessler, J., Dubinsky, A., 2016. Defining and identifying disruptive innovations. Industrial Marketing Management 57, 119-126

Nezlobin, A., Rajan, M.V., Reichelstein, S., 2016. Structural properties of the price-to-earnings and price-to-book ratios. Review of Accounting Studies 21, 438-472

Nichols, D.C., Wahlen, J.M., 2004. How Do Earnings Numbers Relate to Stock Returns? A Review of Classic Accounting Research with Updated Evidence. Accounting Horizons 18, 263-286

Notarantonio, E., M., Quigly, C.J., 2013. Extending technology for market disruption: a case study. Journal of Product and Brand Management 22, 309-313

Nourayi, M.M., Mintz, S.M., 2008. Tenure, firm's performance, and CEO's compensation. Managerial Finance 34, 524-536

NSX, 2009. Why List? URL www.nsxa.com.au

NSX, 2012. Capital raised per calendar year. Melbourne Australia

NSX, 2014. End of Year Statistics. National Stock Exchange of Australia, Melbourne Australia

O'Brien, J.P., 2003. The capital structure implications of pursuing a strategy of innovation. Strategic Management Journal 24, 415-431

O'Shea, P.D., Worthington, A.C., Griffiths, D.A., Gerace, D., 2008. Patterns of disclosure and volatility effects in speculative industries. Journal of Financial Regulation and Compliance 16, 261-273

Ogawa, S., Piller, F.T., 2006. Reducing the Risks of New Product Development. MIT Sloan Management Review 47, 65

Organisation for Economic Cooperation and Development, 2014. Reforming the public sector. OECD, Slovak Republic

Orycaso, G., Rogers, M., 2004. An economic investigation of the volatility and market efficiency of the US Smal Cap 600 Stock Index. Quarterly Journal of Business and Economics 43, 139-155

Osborne, S., Katselas, D., Chapple, L., 2012. The preferences of private equity investors in selecting target acquisitions: An international investigation. Australian Journal of Management 37, 361

Osterle, D., 2006. Addressing High Cost IPOs. In: Boulder Daily Camera, Boulder USA

Ou, J.A., Penman, S.H., 1989. Financial statement analysis and the prediction of stock returns. Journal of accounting and economics 11, 295-329

Ozenbas, D., Pagano, M.S., Schwartz, R.A., 2010. Accentuauted intraday stock price volatility. journal of Portfolio Management 36, 45-55

Padachi, K., 2006. Trends in working capital management and its impact on firms' performance: an analysis of Mauritian small manufacturing firms. International Review of business research papers 2, 45-58

Pagano, M.S., Panetta, F., Zingales, L., 1998. Why do companies go public: An empirical analyis. Journal of Finance LIII, 27-64

Palich, L.E., Cardinal, L.B., Miller, C.C., 2000. Curvilinearity in the diversification-performance linkage: An examination of over three decades of research. Strategic Management Journal 21, 155

Papalexandris, N., Galanaki, E., 2008. Leadership's impact on employee engagement: differences among entrepreneurs and professional CEOs. Leadership and organization. 30, 365-385

Park, H., Sohn, W., 2013. Behavioral Finance: A Survey of the Literature and Recent Development. Seoul Journal of Business 19, 3-42

Pascal, D., Mersland, R., Mori, N., 2017. The influence of the CEO's business education on the performance of hybrid organizations: the case of the global microfinance industry. Small Business Economics 49, 339-354

Patton, D., Marlow, S., Hannon, P., 2000. The relationship between training and small firm performance; research frameworks and lost quests. International Small Business Journal 19, 11-27

Paulet, E., Parnaudeau, M., Abdessemed, T., 2014. The SME struggle for financing: a clampdown in European banks post-crisis. Journal of Business Strategy 35, 36-45

Pergola, T.M., Joseph, G.W., 2011. Corporate governance and board equity ownership. Corporate Governance 11, 200-213

POA, 2015. Statistical snapshot: small business employment contribution and workplace arrangements. In: Parliamentary Research Publications

Pojezney, N., 2007. Value Creation In European Equity Carve-Outs. Springer Science and Business Media: Business and Economics, New York.

Porter, M.E., 1985. Competitive Advantage. Free Press, New York.

Prahalad, C.K., Hamel, G., 1990. The core competence of the corporation. Harvard Business Review 68, 40-47

Press, S.J., Wilson, S., 1978. Choosing between logistic regression and discriminant analysis. Journal of American Statistical Association 73, 699-705

Priem, R.L., Lyon, D.W., Dess, G.C., 1999. Inherent Limitations of Demographic Proxies in Top Management Team Heterogeneity Research. Journal of Management 25, 935-953

PWC, 2013. Data: Investments by stage of development, Q1 1995-Q3 2013. In: Money Tree Reuters T (Ed.). National Venture Capital Association, New York

Rangan, S., 1998. Earnings management and the performance of seasoned equity offerings. Journal of Financial Economics 50, 101-122

Rath, S., Rashid, M., 2016. Undervaluation and private equity takeovers. Australian Journal of Management 41, 735

RBA, 2010. Submission to the Enquiry into access of small business to finance. Reserve Bank of Australia, Melbourne

Reber, B., Fong, C., 2006. Explaining mispricing of initial public offerings in Singapore. Applied Financial Economics 16, 1339-1353

Reinganum, M.R., Smith, J.K., 1983. Investor preference for large firms: new evidence on economies of size. The Journal of Industrial Economics 32, 213-227

Roberts, P.W., Dowling, G.R., 2002. Corporate reputation and sustained superior financial performance. Strategic Management Journal 23, 1141

Robson, P.J., Bennett, R.J., 2000. SME growth: The relationship with business advice and external collaboration. Small business economics 15, 193-208

Rodenbach, M., Brettel, M., 2012. CEO experience as micro-level origin of dynamic capabilities. Management Decision 50, 611-634

Rosseau, S., 2007. London calling? The experience of the Alternative Investment Market and the competitiveness of the Canadian Stock Exchange. Banking & Finance Law Review 23, 51-105

Rothschild, M., Stiglitz, J., 1976. Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information. The Quarterly Journal of Economics 90, 629-649

Rouwenhorst, K.G., 1999. Local return factors and turnover in emerging stock markets. The Journal of Finance 54, 1439-1464

Russell, M., 2015. Continuous disclosure and information asymmetry. Accounting Research Journal Bingley 28, 195-224

Sahin, O.F., 2005. The Performance of Acquisitions in the Real Estate Investment Trust Industry. The Journal of Real Estate Research 27, 321-342

Sawers, K., Wright, A., Zamora, V., 2011. Does Greater Risk-Bearing in Stock Option Compensation Reduce the Influence of Problem Framing On Managerial Risk-Taking Behavior? Behavioral Research in Accounting 23, 185-201

Scarborough, N.M., 2012. Effective Small Business Management: An entrepreneurial approach. Prentice Hall, Upper Saddle River, N.J.

Schäfer, D., Werwatz, A., Zimmermann, V., 2004. The determinants of debt and (private) equity financing: The case of young, innovative SMEs from Germany. Industry and Innovation 11, 225-248

Schmidt, G.M., Druehl, C.T., 2008. When Is a Disruptive Innovation Disruptive? The Journal of Product Innovation Management 25, 347

Schürmann, S., 2006. Reputation: Some Thoughts From An Investor's Point of View*. Geneva Papers on Risk & Insurance 31, 454-469

Schutt, R.K., 2004. Investigating the Social World, Pine Forge, Thousand Oaks, CA.

Seah, M., Hsieh, M.-H., Huang, H.-Y., 2014. Leader driven organizational adaptation. Management Decision 52, 1410-1432

Shleifer, A., Vishny, R.W., 1997. A survey of corporate governance. The journal of finance 52, 737-783

Sichelman, T., 2010. COMMERCIALIZING PATENTS. Stanford Law Review 62, 341-411

Sigalas, C., Economou, V.P., Geogopoulus, N.B., 2013. Developing a measure of competitive advantage. Journal of Strategy and Management. 6, 320-342

Simeonov, K.P., 2015. EU CAPITAL MARKETS INITIATIVES FOR BETTER FINANCING SMEs. On - line Journal Modelling the New Europe, 43-67

Smallbone, D., Leig, R., North, D., 1995. The charateristics and strategies of high growth SMEs. International Journal of Entrpreneurial Behaviour and Research 1, 44-62

Sørheim, R., 2005. Business angels as facilitators for further finance: an exploratory study. Journal of Small Business and Enterprise Development 12, 178-191

Spence, M., 1973. Job market signaling. The Quarterly Journal of Economics 87, 355-374

Stangler, D., 2010. High-growth firms and the future of the American economy.

Staple, R., 2009. Liquidity: The Small Caps Holy Grail. URL Growth Business Website

Stiglitz, J.E., 1973. Taxation, corporate financial policy, and the cost of capital. Journal of Public Economics 2, 1-34

Stone, W.S., Tudor, T.R., 2005. THE EFFECTS OF FUNCTIONAL BACKGROUND EXPERIENCE, INDUSTRY EXPERIENCE, GENERIC EXECUTIVE MANAGEMENT EXPERIENCE ON PERCEIVED ENVIRONMENTAL UNCERTAINTY AND FIRM PERFORMANCE. Advances in Competitiveness Research 13, 1-8

Strauss, A., Corbin, J., 1998. Basics of Qualitative Research. Sage, Newbury Park, C.A.

Streiner, D.L., 1994. Figuring out factors: the use and misuse of factor analysis. The Canadian Journal of Psychiatry 39, 135-140

Subrahmanyam, A., 2010. Optimal Financial Naïveté. Review of Behavioral Finance 2, 1-18

Teoh, S.H., Welch, I., Wong, T.J., 1998. Earnings management and the underperformance of seasoned equity offerings. Journal of Financial Economics 50, 63-99

Teshnizi, S.H., Ayatollahi, M.T., 2015. A Comparison of Logistic Regression Model and Artificial Neural Networks in Predicting of Student's Academic Failure. Acta Informatica Medica 23, 296-300

Thompson, J.L., 1998. Competency and measured performance outcomes. Journal of Workplace Learning 10, 219-231

Thornhill, S., 2006. Knowledge, innovation and firm performance in high-and low-technology regimes. Journal of business venturing 21, 687-703

Trends, A.S., Austrade, D., 2010. Islamic Finance.

Turyakira, P., Venter, E., Smith, E., 2012. Corporate social responsibility for SMEs: A proposed hypothesised model. African Journal of Business Ethics 6, 106-119

Wahba, H., 2013. The joint effect of board characteristics on financial performance. Review of Accounting and Finance 14, 20-40

Walsh, M.F., Lipinski, J., 2009. The role of the marketing function in small and medium sized enterprises. Journal of Small Business and Enterprise Development 16, 569-585

Wang, Q., 2012. The choice between publicly issued and privately placed preferred stocks. Managerial Finance 38, 689-701

Wang, Y., Berens, G., 2015. The Impact of Four Types of Corporate Social Performance on Reputation and Financial Performance. Journal of Business Ethics 131, 337-359

Wang, Y., Lo, H.P., Yang, Y., 2004. The constituents of core competencies and firm performance: evidence from high technolgy firms in China. Journal of Engineering and Technology Management 21, 249-280

Welch, I., 1997. Why is bank debt senior? A theory of asymmetry and claim priority based on influence costs. Review of Financial Studies 10, 1203-1236

Wen-Ben, Y., Hsu, J., Tung-Hsiao, Y., 2013. Earnings managment, institutional shareholdings, and performance of SEO firms. Managerial Finance: Patrington 39, 528-549

West, P.M., Brockett, P.L., Golden, L.L., 1997. A Comparative Analysis of Neural Networks and Statistical Methods for Predicting Consumer Choice. Marketing Science (1986-1998) 16, 370

Wilkinson, M., Buchanan, N., 2010. Pushing the IPO button. Chartered Accountants Institute of Australia

Willert, F., zu Knyphausen-Aufsess, D., 2008. What Determines the Size of Private Equity Firms?

Williams, J.L., Sun, H.-L., 2015. An Examination of Industry Leadership Reputation and Meeting or Beating Analysts' Expectations. Journal of Accounting and Finance 15, 37-50

Wincent, J., Westerberg, M., 2005. Personal traits of CEOs, inter-firm networking and entrepreneurship in their firms: investigating strategic SME network participants. Journal of developmental entrepreneurship. 10, 271-284

Witzel, M., 2005. The IPO decision: Why and how companies go public. Corporate Finance Review 96, 46-48

Wood, J., Vilkinas, T., 2007. Characteristics assciated with CEO success: perceptions of CEOs and their staff. Journal of Management Development 26, 213-227

Wright, P.M., McMahon, G.C., 2011. Exploring human capital: Putting "human" back into strategic resource management. Human Resource Management 21, 93-104

Yoo, J.W., Kwangsoo, K., 2012. Board competence and the top managements team's external ties for performance. Journal of Mangement & Organization 18, 142-158

Appendix A: Literature Review Paper

Pages 142-161 removed due to copyright restrictions.
Dwyer, B., Kotey, B., 2016. Identifying high growth firms: Where are we? Journal of Management and Organization 22, 457-475

Appendix B: Financing SME Growth Paper

Pages 162-172 removed due to copyright restrictions.
Dwyer, B. and Kotey, B. 2015. Financing SME growth: The role of the National Stock Exchange of Australia and business advisors. Australian Accounting Review 25, 114-123